INTN'L MONTHLY MAGAZINE - BY AND FOR ACTIVE RADIOAMATEURS

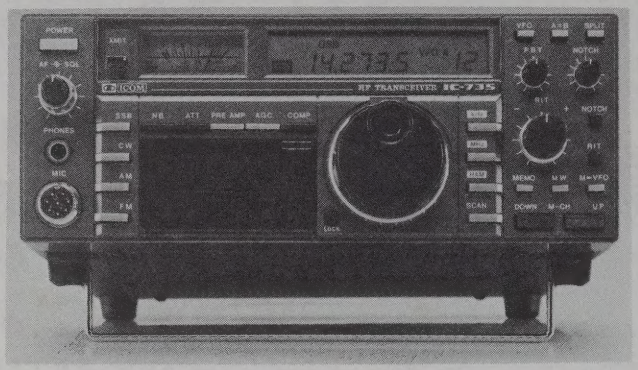
RADIOSPORTING

APRIL 1985 No. 6 $2.00

W2PV - Q & A
KENWOOD MODS
MICROPHONE EQUALIZER
SPLIT CHANNEL-SSB

NEW PRODUCTS...

NEW IC-735 HF TRANSCEIVER



Icom announces the IC-735 ultra compact all ham band HF transceiver and general coverage receiver...the most compact and advanced HF SSB unit on the market. Measuring only 3.7 inches high by 9.5 inches wide by 9 inches deep, the IC-735 is well suited for mobile, marine or base station operation.

To enhance receiver performance, the IC-735 has a built-in receiver attenuator and preamp. Plus, it has a 105 dB dynamic range and a new low-noise phase-locked loop for rock-solid reception.

The IC-735 features a large LCD readout and conveniently located controls which allow simple operation, even in the mobile environment. VOX controls, mic gain and other seldom changed controls are kept out of sight behind a hatch cover on the front panel of the radio, but are immediately accessible.

OTHER STANDARD FEATURES - AT NO ADDITIONAL COST

FM Built-in, 500 Hz CW Filter (FL-32), Electronic CW Keyer, HM-12 scanning mic, FM/CW/LSB/USB/AM (Tx and Rx), 12 tunable memories with lithium memory backup, Program and memory scan, Adjustable AGC, Automatic SSB selection by band, RF speech processor, 12 V operation, Continuously adjustable output power up to 100 watts, 100% duty cycle, Deep tunable notch

A new line of accessories will also be available, including the AT-120 automatic programmable antenna tuner and the PS-55 power supply. The IC-735 is also compatible with most of ICOM's existing line of HF accessories.

The IC-735 will be available in May 1985, and pricing will be announced the end of April. The IC-735 will be displayed at the Dayton Hamvention, April 26-28. (Icom America, Inc.)

0-777 COMPUTER-INTERFACE COMMUNICATIONS TERMINAL

Amateur-Wholesale Electronics announces the new O-777 Computer-interface terminal, featuring RTTY, Bit Inversion, AMTOR modes ARQ, FEC and SEL-FEC, ASCII and CW, any speed any shift (ASCII and Baudot).

The O-777 is a self-contained unit including software that allows reception and transmission with any computer or terminal that has RS232 or TTL I/O. The O-777 automatically decodes signals and displays mode, speed and polarity on the CRT. Operation is made simple by the use of 28 Bar-LEDS and LEDS including a bar-graph tuning indicator that allows precise centering of received signals.

In BAUDOT and ASCII modes, communications speed can be set from 12 to 200 baud (ASCII) or 45.5-200 baud (BAUDOT). Morse speed can be varied from 5 to 100 wpm in 1-wpm increments and is fully autotrack on receive.

Other important features of the O-777 include 15 channels of message memory plus a 768 character input or type ahead buffer, manual/automatic PTT switching, selective calling, provision for tape-recorder backup memory, automatic carriage return and line feed, pre-loading function, error correction (rub-out), CW random generator for code practice, variable CW weight, test messages (RY and QBF), bit inversion for RTTY reception and transmission, diddle, echo, full CRT function display, audio monitor, CW sending practice function, mark-only or space-only reception, crystal-controlled AFSK modulator, anti-noise feature, and much much more. The instruction manual provides sample computer terminal programs for use with NEC or Apple II personal computers.

The O-777 operates from a power supply of 11 to 14 volts dc. The unit measures approximately 2.5 inches high, 9 inches wide, and 10 inches deep. For more information, please contact Amateur-Wholesale Electronics, Inc., 8817 S.W. 129 Terrace, Miami, FL 33176.

HEIL Ltd. BM-10 HEADSET

The BM-10 headset/boom mike weighs 8 oz and has completely adjustable mini boom with microphone. This set is ideal for contesting, DXing and hand free operation on SSB. One ear piece is removable.

KENWOOD

...pacesetter in Amateur radio

NEW!

"DX-cellence!"

The new TS-940S is a serious radio for the serious operator. Superb interference reduction circuits and high dynamic range receiver combine with superior transmitter design to give you no-nonsense, no compromise performance that gets your signals through! The exclusive multi-function LCD sub display graphically illustrates VBT, SSB slope, and other features.

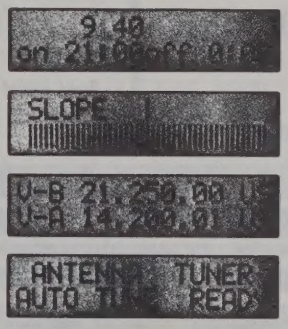
Super efficient cooling system using special air ducting work with the internal heavy-duty power supply to allow continuous transmission at full power output for periods exceeding one hour.

Kenwood's unique transmitter design delivers top "quality Kenwood" sound.

Operating frequencies may be directly entered into the TS-940S without using the VFO knob.

Exclusive multi-function LCD sub-display panel shows VBT, IF shift, pass-band tuning, as well as frequency, time, and AT-940 antenna tuner status.

Remove "rotten QRM" with the SSB slope tuning, CW VBT, notch filter, AF tune, and CW pitch controls.

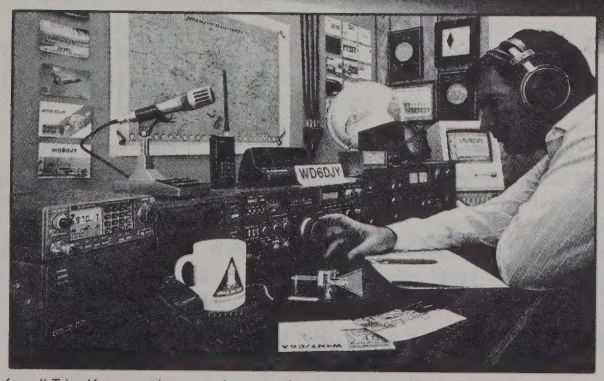


• AT-940 full range (160-10 m) automatic antenna tuner • SP-940S external speaker with audio filtering • YG-455C-1 (500 Hz), YG-455CN-1 (250 Hz), YK-88C-1 (500 Hz) CW filters; YK-88A-1 (6 kHz) AM filter • VS-1 voice synthesizer • SO-1 temperature compensated crystal oscillator • MC-42S UP/DOWN hand mic. • MC-60A, MC-80, MC-85 deluxe base station mics. • PC-1A phone patch • TL- 922A linear amplifier • SM-220 station monitor • BS-8 pan display • SW-200A and SW-2000 SWR and power meters.

An optical encoder and the flywheel VFO knob give the TS-940S a positive tuning "feel."

Mode and frequency may be stored in 4 groups of 10 channels each.

Tunes from 150 kHz to 30 MHz.



More TS-940S information is available from authorized Kenwood dealers.

KENWOOD

TRIO-KENWOOD COMMUNICATIONS
1111 West Walnut Street
Compton, California 90220

Complete service manuals are available for all Trio-Kenwood transceivers and most accessories.
Specifications and prices are subject to change without notice or obligation.

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Model SRB2

- Finest Woodpecker Blanker Available
- Auto-Trak For Hands Off Operation
- Eliminates 2 Woodpeckers At Once

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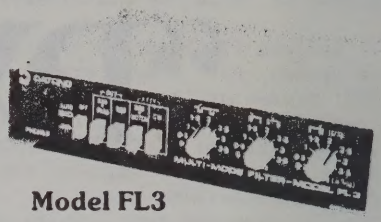

Model FL3

- Multi-Mode Audio Filter With Auto-Notch
- 4 Complete Filters
- Special Tuning For RTTY & CW

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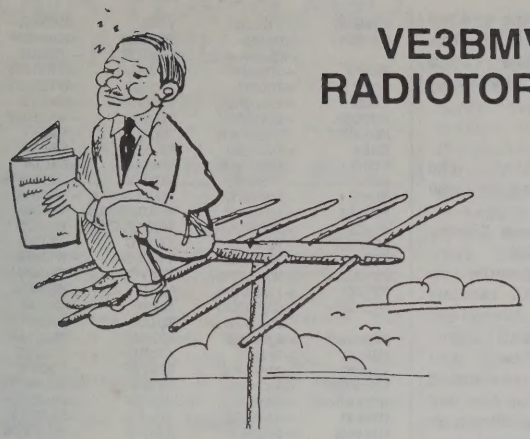


VE3BMV RADIOTORIAL

There are those who complain about technology, progress, ham radio, contesters, DXers or just about anything. Almost everything has a positive and negative side to it. (Is it all because of the battery?) We find people who are professional complainers, but have never done anything to improve their situation. Take away their beer can and TV set and they wouldn't know what to do.

There was a survey done on use of computers and the income bracket of users. It clearly showed that those who played mostly games were in the lower income bracket, while those using it for the word processing or business applications where "highly paid." It doesn't take a genius to figure out why.

Being involved in the automation and robotics field I quite often hear complaints, especially from union types, that robots are going to take away our work. Yet, they drive a car, watch TV, use a video camera and call CQ DX using TS-930S. You think we can convince them to go back into the caves? No way, but bring the productive machinery to their work place and you are taking jobs away from them. But really what kind of jobs? Mostly in dirty, noisy environments, repetitive and dull. A dull person with no sense for learning could see the machines as a threat. Those who love to get out of caves, welcome those complicated looking beasts, because they present the challenge. It is fascinating to observe a piece of microprocessor controlled machinery: precise, fast and consistent. And it all comes down to one or nothing. That's what those "smart" computers think in - a bunch of zeroes and ones.

Is it good or bad for us? On one hand it's good. It gives us an opportunity to learn more, create better tools, instruments and expand our horizons. On the other hand, it creates some problems (the old battery?) in evil hands. But I think the overall benefit is very positive. The main thing is that the technology, especially in communications, helps us all to communicate and understand each other better. We have those wonderful radios and the privilege to talk to just about anybody in the world. (How many non-hams can say "Hi" to a king or a prime minister?) This is quite often the only link with the world for those who cannot speak freely. But they can listen, and boy, do they listen!

We see a lot of anti-anything protests. There is a lot of talk going on about weapons and especially high-tech ones. It is perhaps "normal" that any advances made in technology will be reflected in military hardware. But isn't it because of the fact that we could wipe out the whole population, that we haven't had WW3?

The real problem on Earth is the "brain/technology" gap. We have to understand people and technology, appreciate it and use it wisely. If our brains are "forced" to think and learn, we will easily figure out what is good and what is bad for us. We should be able to adjust our actions accordingly. It is much more pleasant to deal with a person who is educated, intelligent and considerate. It is hard to deal with people who are controlled by emotions and savage instincts rather than by brain and good-relations rules.

One big benefit out of computerization is that it "forces" us to learn and think. It also helps us to learn, and if used wisely, it is a tremendous asset. It can make our lives a lot more pleasant.

What does that have to do with ham radio? Well, we are using electronics and lately computer technology. Our hobby is an excellent tool to master those "ones and nothings" at our pace, while having the fun of communicating with other people and learning mysteries of electrons.

Today's engineer, physician, businessman or entrepreneur is much better off and ahead of the pack if he knows and understands computers and communications equipment. While many things will be automated, somebody has to design, build, maintain and apply all those gadgets. Those willing to learn have a golden opportunity to reap the benefits and make a decent living, be more productive and have more free time to play with "toys."

Computers are the thing today, but we are coming full circle back to radio days again. A combination of the computer, radio and some mechanical gismos can go and do what no human would want to do.

The message to all of us, especially young ones, is: Don't be afraid and intimidated by technology, but dig in and learn and explore it. It is fascinating. If you can count zero and one, you can do it! Our amateur radio hobby or sport is an excellent opportunity to get involved with electronics. Get curious and find out what makes a radio or computer tick. Grab a mike or key and talk to a friend, make a friend. You would be surprised who may be hiding behind a call sign. Another interesting fact that comes across is that most hams, especially dedicated ones, are very nice and pleasant people. Perhaps this is because it takes some effort to get a license and the hobby demands a lot of time and effort. We do it, because we love it. Hams are great lovers. Why would they otherwise yell for 48 hours "CQ Contest?"

Lets be considerate, friendly and true ambassadors of international goodwill and friendship. Let's use our radios wisely and don't be a bull in a china shop when that inexperienced "new one" shows up on 14.195. Remember, the whole world is listening, and they can look us up in the Call Book.

This last month was a very hectic one here. A number of things just piled on us and some of the changes and new things we wanted to incorporate into this issue had to be postponed. To top it all, I "had" to go in WPX SSB contest. There was no time to switch the antenna system from 40 to 80 m, so the only choice left was 40 m monoband again. Freezing rain cleaned my tower of some hardware on Sunday, so there are more things to do.

The IRSA certificates are finally printed and together with badges they will be going out shortly. Thanks for your patience.

See you all in Dayton. See us at the RADIO-SPORTING booth #109 and bring a friend!

73 de Yuri +

DX NEWS

The DX news from around the world as exchanged on the IRSA net and other sources: Kansas City DX Club Newsletter, South California DX Bulletin, The DX Bulletin, Westlink Report, Worldradio, DJ9ZB, KG6DX, SMOAGD, VE3BMV and VE3ICR. The IRSA net operates on Sundays around 14.200 MHz, starting at 2000 Z and 3.830 (Mondays at 0200 Z).

3B7, St. Brandon

Starting approximately April 12, 1985 for one to two weeks, depending on transportation. The operators will be Jacky, 3B8CF, Thor, LA7XB and Erik, SMOAGD. All bands 160 through 10 m on CW and SSB.

QSL cards will be handled by each operator, so please send them to his home QTH as in the latest Call Book. (Not via SM3CXS!)

Operators will try new method of working the SSB pileup as described by Erik in this issue. So listen carefully for the operator's instruction. If you find his receive pattern, your chances to QSO will increase tremendously.

St. Brandon is a group of small coral islands located on Long. 59 deg. 45' East and Lat. 16 deg. 15' South, some 300 miles north of Mauritius in the Indian Ocean. St. Brandon has no permanent population but there is a meteorological station and fishermen from Mauritius stay there temporarily. The operators will meet in Mauritius on April 7th. During the final preparations they will test their equipment on the air from time to time. They will travel to St. Brandon on a fishing vessel. The trip will take two days. They are bringing a 3 el. Yagi plus verticals and wire antennas for the low bands.

ACWBA. (Any contributions will be very much appreciated.)

5V8WS, Togo

has been active on 21.203 at 1430Z and 3778 at 2350Z. QSL cards via DJ6QT.

5X5BD, Uganda

operation by DJ6SI, lot of high speed CW. QSL cards to his home call.

A22, Botswana

might be becoming a rare one in the future. A22ME and A22TE have gone QRT and the government has no plans to issue the licenses for DXpeditions.

CF3NAR, Canada

Special event station CF3NAR will be operating from the H.M.C.S. destroyer Haida, at Ontario Place in Toronto on May 4th and 5th, 1985 between the hours of 1300 and 0100Z. Special Commemorative certificates will be issued to all stations contacting the ship. Freq: 7065, 7165, 14065, 14265. This is to commemorate the 42nd Anniversary of the commissioning of this famous ship as well as the 75th Anniversary of the founding of the Royal Canadian Navy.

FOØXX, Clipperton

During the CQ WPX Contest the Clipperton crew was on the way to FOO with possible stop on XF4.

The last minute addition was Clark, W8TN who is replacing Kip, W6SZN.

Expedition started to operate on Apr. 6th after some delays with landing due to the bad weather. Excellent signals on all the bands and super operators should be able to satisfy all the demand. Weather also prevented operation from Revilla Gigedo on the way to FOO. They are hoping to stop there on the way back.

Franz, DJ9ZB member of the expedition team has promised us a full report and photographs from this giant undertaking.

HC8SL, Galapagos Isl.

operation by HC2SL with lot of high speed CW. QSL cards to his home call.

KH4, Midway

KD7P/KH2 and NA6T operated from Midway as KD7P/KH4 (SSB) and NA6T/KH4 (CW) from Mar 28 to Apr. 11. Apparently they made a big score in the WPX SSB contest.

KH8, American Samoa

WH8AAJ is active on 40 and 80 m. Kim has been worked on 7.080 at 1000Z, and 3855 at 1015Z

KP1, Navassa

6Y5FS/KP1 and 6Y5NR/KP1 appeared as promised and excellent operation and signals on all bands.

TZ6FE, Mali

is active on 20 m around 14.280 kHz at approximately 2000Z. QSL cards via DL4BC

VK9X, Christmas Island

VK6IR and VK6DU were on the air with VK8XB and VK9XG call operating in the WPX SSB contest and special attention given to 80 and 40 m bands. QSL cards to their home calls.

ZC4ZN, Cyprus

quite active on the bands and satisfying demand from those who did miss this "new" country in the past. QSL cards go to PAOGMM.

DAYTON HAMVENTION CONTEST FORUM

Will feature the following presentations: VE2USA (K8QM), USSR operating (K1KI), receiver evaluations (NCOB), The K2XR 160 m station, Japanese contest stations (K1DG), DX contest strategy (N6AA), Contesting from U.K. (GJOAAA), the Frankford Radio Club (W2REH), CQ VHF contest (KT2B), W9ZRX station description, KC DX CW pile-up test, upgrades for 3-500Z amplifiers, presentation of CQ contest awards and "Not Ready for Prime Time Contesting" (K1DG and K2WR).

QSL routes

A22ME	—AK1E	CG3SAS	—VE3FOI
AH2U	—K9XR	CO5GV	—W3HNK
AI5P/TF	—W3HNK	CT2AK	—W3HNK
AP2ZA	—W6NLG	CU5BOH	—CT1BOH
C90A	—WM4N	CX7BY	—WØIJN
CEØERY	—CE3EEO	CX9AU	—CX2SA
CYØSAB	—VE1CBK	V3ZZ	—KE5KK
DJ6SI/5V	—DJ6SI *(See Note 1)*	VE2USA	—KA8SEW
		VK9XW	—VK6RU
EL2FJ	—JF2QHC	VP2MLD	—WB2LCH
EL7C	—DK5VI	VP2MO	—WB2LCH
EM2C	—UC1AWB	VP5GEX	—KØGVB
EO2QGL	—UQ2GWF	VQ9DG	—WA3HUP
EO3AWK	—UZ3WWW	VQ9QA	—N3QA
ER3A	—UZ3AZO	VR6BR	—KA9W
EU1Q	—UQ1GWW	VS6DO	—K4CIA
EU5T	—RT5UW	VU7GV	—HB9MVW
EU8M	—UM9MWA	W1RAN/C6A	—W1RAN
EW6AA	—UZ6AWJ	W3UM/VP2M	—W3UM
FG4CP	—FG7BT	W9DCN/C6A	—W9DCN
FG5DL/FS	—F6ARI	XO1XG	—VE1XG
FM5WD	—W3HNK	YB5ASO	—W4BBP
FY7AE	—WA4WTG	YC8VCE	—JL1MWI
FY7BO	—1985 CBA	YS1UL	—WAØJYJ
GB2SDD	—GW4HOQ *(See Note 2)*	Z21BQ	—DJ5DA
		ZD9CA	—KA1DE
GD4WBY	—KA1JKN	ZF2AQ	—WA3YJA
HI8LC	—W2KF	ZF2BN	—W4HET
HL2SF	—JH6YBW	ZF2FK	—K9QVB
HP1XKR	—JA7AGO	ZF2GE	—WA4WTG
HW4KR	—F2YT	ZK1XS	—PA2DXY
HW4RI	—FD1HSZ	ZK1XV	—PA2DXY
HW4SM	—FD6IFJ	ZP5KS	—WA4WTG
HZ1AB	—K8PYD	ZS3GB	—NØAFW
IQ1RAI	—I1XA	ZS3HL	—KE1A
J5WAD	—UA4PW	ZS3KI	—K1ZLA
J28EI	—FC1JEN	ZS3YJ	—K6TQ
J37AH	—W2GHK	3D6AN	—WK4Y
J87BS	—KE5KK	4K1A	—UY5DJ
J88AG	—KA1ILA	4K1F	—UQ2GAG
JW6BAA	—LA7JO	4S7VK	—DJ9ZB
JY9WR	—G4ATS.	4U1UN	—W2MZV
K9VV/VS6	—KB9AW	4Z4DX	—WA4WTG
KA2DIV/V2A	—WB4OSN	4Z4HF	—WA4WTG
KC4AAC	—W6MAR	5N3RTF	—DK2IF
KF6ME/DU2	—KF6ME	5N8ALH	—G4HVE
KG4DX	—WB2CPV	5NØATT	—K4PVZ
N4SF/VS6	—N4SF	5R8AL	—WA4VDE
OH2BEJ/EA8	—OH2BEJ	5T5CS	—F6FNU
OX3SG	—LA5UM	5V7NG	—WB4LFM
P29RY	—WA4WTG	5V7RW	—WB4LFM
PY1BVY/		5Z4ED	—JH6FMU
PYØT	—PY1BVY	5Z4RH	—WA4WTG
RT5UL/UJ	—UT5AB	6D1FIC	—K9AUB
RT5UL/UI	—UT5AB	6V2EX	—F6EYS
RT5UY/UH	—UT5AB	6W1KI	—F6EYS
RT5UY/UI	—UT5AB	6W1NQ	—DL1HH
S83H	—1985 CBA	6W2EX	—F6EYS
SU3AM	—SU1ER	6Y5IC	—KE3A
T30AT	—G4GED	6Y5RL	—WA4WTG
TG9XHQ	—JA4FGD	8P6AH	—WA4WTG
TI1W	—KE5KK	8P6GG	—N4CTC
TI2BEV	—W4ZD	8P6IG	—WA4WTG
TI2EY	—DF6EX	8P6MI	—VE3JTQ
TI2KD	—KE5KK	8P6NW	—KA9EBM
TI5FBP	—KE5KK	9J2BO	—W6ORD
TR8AHO	—DK1PO	9J2J1	—KP4CZ
TR8DM	—F3CTW	9J2LG	—1985 CBA *(See Note 3)*
TZ6FE	—DL4BC		
UT5UBW/UM	—UT5AB	9M3HB	—N4FFN
V2AK	—WA4WTG	9U5JB	—ON5NT
V2ARS	—K8BA	9Y4VU	—W3EVW

A4XJZ	—P.O. Box 981, Muscat, OMAN
A4XKD	—P.O. Box 981, Muscat, OMAN
C21DX	—P.O. Box 225, REPUBLIC OF NAURU
C21LD	—Lorenzo, P.O. Box 80, REPUBLIC OF NAURU
CEØZIJ	—Gus, P.O. Box 1, Easter Island, CHILE
CM2QP	—P.O. Box 1, Havana, CUBA
CO2AL	—P.O. Box 10, Havana 14, CUBA
EA9IB	—P.O. Box 213, Melilla, SPAIN
EL2AY	—P.O. Box 3485, Monrovia, LIBERIA
FH8CB	—P.O. Box 50, F97610 Mayotte Isle, FRANCE
FO8BI	—Bob, P.O. Box 5924, Pirae, Tahiti, FRENCH POLYNESIA
FT8Xb	—Michael Monceau, P.O. Box 83, Argenteuil, F95102 Kergulen Isle, FRANCE
GD4WCY	—P.O. Box 19, Ramsey, ISLE OF MAN
HC2SK	—B.P. 8283, Quito, ECUADOR
PJ2KI	—P.O. Box 3632, Curacao, NETHERLANDS ANTILLES
PYØTE	—Rua Ageu Romero 53, Fortaleza, CE 60[illegible] BRAZIL
V85HG	—Hassan, P.O. Box 222, BSB, BRUNEI
VK9MR	—P.O. Box 31, Winmalee 2777, AUSTRALIA
VP8BDO	—John, P.O. Box 217, Port Stanley, FALKLAND ISLANDS
ZD7BJ	—P.O. Box 25, ST. HELENA ISLAND
3D6BU	—P.O. Box 64, Manzini, SWAZILAND
4M4SS	—P.O. Box 510, Valencia 2001, VENEZUELA
5L2BA	—P.O. Box 987, Monrovia, LIBERIA
9L1CISV	—P.O. Box 10, Freetown, SIERRA LEONE
9Y1VY	—Steve Bassham, 251 Upper Serangoon Road SINGAPORE 1334

Notes

1. QSL requests for contacts with DJ6SI/5V go to DJ6SI direct only.

2. An address was also given for this one: R. Jones, Strawberry Place, Morriston, Swansea, West Glamorgan SA6 7AG, WALES.

3. When requesting a QSL from 9J2LG, include 3 IRC's to the address given in the 1985 edition of the Callbook.

FOUR YEARS AGO, APRIL 1st

QRU DX

DX TIPS FOR
BIG GUNS & PEOPLE WITH MONEY

70 SOUTH YEMEN

Don Miller, W9WNV, has obtained permission to operate from the historic "Joi-Rentzhtze" prison yard during the phone weekend of the ARRL DX test. This famous location was used during the filming of "The Three Stooges Meet the Mummy". It looks like the QSL chores will be handled by W3AZD, so send your cards directly to the leagues Newington address. (No green stamps!)

ZL/K KERMADEC

Ron, ZL1AMO, was unable to land on this rare Pacific island due to a conflict with jacques Cousteau and the filming of his upcoming special "Cousteau Nukes the Whales". Ron says that local authorities predict the fallout will produce safe levels for visitors around the year 2083.

VE CANADA

The Colvins are at it again with a blitz through the Canadian provinces. Lloyd, W6KG, who recently finished 2nd for all band Bahama Phone Honors at C6KGB in the CQ WW DX Test reports that the operation from Canada will begin in Ontario with W6KG/VE3 and conclude in British Columbia with either W6KG/VE6 or W6QL/VE6 if the licensing arrangements can be made. QSL to the YASME Foundation address in Castro Valley, California.

VK0 HEARD ISLAND

Jim Smith, VK9JS, reports that the March '81 Heard Island DXpedition is again postponed due to financial constraints. It seems that Jim had deposited the $17,600 received as donations from DX Clubs and individuals in a six month certificate of deposit. Had he withdrawn the funds to finance the trip he would have suffered a "substantial penalty for early withdrawal". Jim plans to continue his work on late night 20 meter phone but reiterates that he does not appreciate being called by stateside amateurs until the important work is done.

ARRL DX TEST UPDATE

The ARRL Contest Advisory Committee in a vote of 8 to 3, has decided to modify the operating periods for both the CW and Phone DX Contests to allow two additional hours of operation for first (1), and second (2) district stations. During the past few years the East Coast has come very close to losing its dominance in this event and the committee felt that this rule change would insure that the traditions of the past are preserved. Look for detailed comments regarding this change in next months QST.

ON THE DX NETS - AFRICANA NET

Herbie, WB6BJS, reports excellent activity for all on the 21.345 Africana DX Net. Last week alone such "catches" as KL7D, HI8IH, KP4RR, and TG9AL made their presence known. Anyone with two or three hours to spend that needs to work a Central American country is welcome to check in.

ON THE DX NETS - W7PHO FAMILY HOUR

Bill Bennett, W7PHO, is recovering nicely from a mild stroke suffered after his DXCC tally was audited by an entry level league clerical assistant. It appears that Bill's VS9K, 7O, XV5 and BV2 contacts were not valid. Additional analysis found fifty four other questionable contacts, which will certainly effect his status on the Honor Roll. Note: It has also been discovered that Bill has been operating in the HF bands with only a Technicians License.

ON THE DX NETS - WA2JUQ MAFIA

The big news here is the joining of two good DX nets into the one multi frequency activity! WB8ZJW and WA2JUQ have combined forces to form the "DX Happy Hour". As the name implies, if you are able to connect with net control during the net period, you will be able to work "two for the price of one". Al will get things going during the early evening on 14.240 listening down. After Al's four hour stint, Paul will take over and run the net into the wee hours.

PROPAGATION

Looks like I really messed up last week as the prediction of high normal for the ten day period was marred by four solar flares and the Hydrogen bomb test conducted in the South Atlantic. Hey, if you think this is easy why don't you come on over and interpret this data yourself!

The N4XX Forecast is:

4	Jan	Gad Awful
5	Jan	disgusting
6	Jan	Sick
7	Jan	Blackout
8	Jan	Poor
9	Jan	Yeccch!
10	Jan	Go To Movie
11	Jan	Puke
12	Jan	Stinks
13	Jan	Bad
14	Jan	Sick
15	Jan	Marginal
16	Jan	Fair
17	Jan	High Sick

QRU DX EDITOR'S COMMENT

Finally sold all of my HF equipment. This hobby has gotten to the point where it's no fun at all. List, Lids, Canadians, bad propagation and nothing on to work, has finally taken its toll.

Got myself a nice 2 meter rig and really enjoy visiting with the chaps on their way to and from work. Yesterday I almost worked into the Houston repeater - pretty keen!

Our family babysitter has taken over the editorship of the Newsletter and she will continue to provide the fine quality journal that you've grown to know over the years.

Look for me in the contests from N5AU. You can go over there and really kick butts with the Alpha 77 S and the big antennas. There's nothing I enjoy more than crushing those pesky East Coast stations in a JA pileup.

THAT'S LIVING!

As for DXing...let Don Wallace work it! 73! K5F**

(Extracted from KCDX underground news.)

SPACE SHUTTLE DELAY

FURTHER DELAY OF THE NEXT "ham in space" operation by Dr. Tony England, WOORE, is possible due to problems plaguing the U.S. Space program. On Friday, March 1, NASA announced the cancellation of Flight 51-E, due to problems with one of the satellites it was to deploy while in orbit. This flight was also supposed to mark the first time that a politician would have flown into space, as U.S. Senator Jake Garn (R-Utah) was a scheduled member of the crew.

Exactly what effect the cancellation of 51-E will have is hard to assess at this time, but things could go one of two ways as far as amateur radio is concerned. On the negative side, the delays in the overall program could cause NASA to delete all non-essential matters from future flights in order to be able to concentrate all available flight time on projects directly related to space business, such as the orbiting, retrieval and repair of communication satellites. However, it must be remembered that the November/December 1983 ham radio operation from space by astronaut Dr. Owen Garriott gave both NASA some of the finest and most positive public exposure it has had in many years, by permitting direct participation in the US Space program by a small sector of the worlds population.

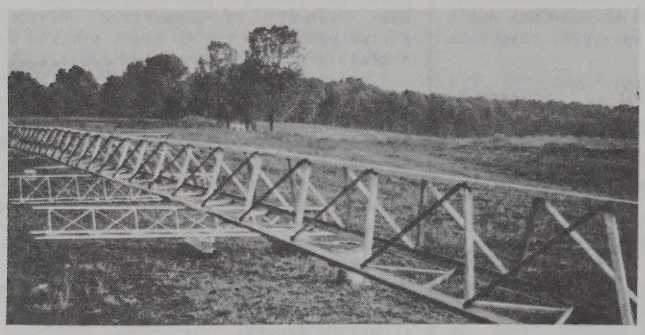
The need for a continued high level of positive public image by NASA for the shuttle program could make future "ham in space" operations like the one scheduled for Dr. Tony England on flight 51-F/Spacelab 2 into a high priority, as this would again focus world attention on the capabilities of the United States and its abilities in space. Therefore, whether or not there will be a "ham in space" mission during fiscal 1985 is something that is unknown at this time. (Westlink Report)

DOC AGENDA

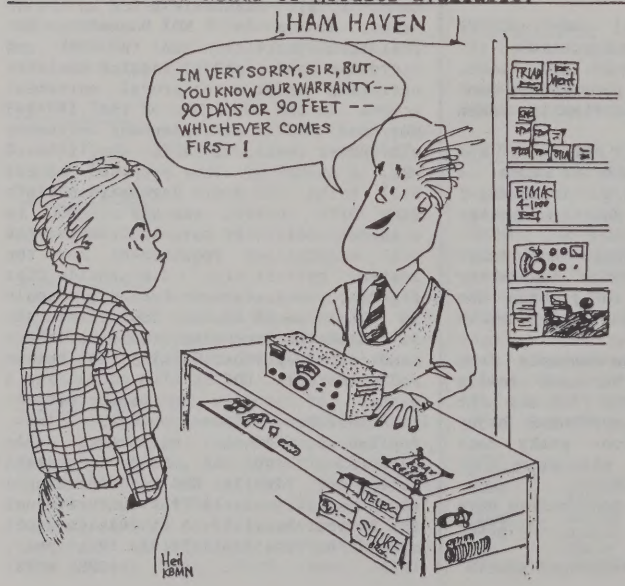
DOC's latest Regulatory Agenda contains many items of interest to amateurs. DOC is still planning to amend the Radio Regulations and officially permit: 1. repeaters in the 29-29.7 MHz band; 2. slow-scan television in the HF bands; 3. up to 6 MHz bandwidth for fast-scan television in the UHF and microwave bands; and 4. foreign amateurs operating under a reciprocal agreement access to the top 2 MHz of the 144-148 MHz band. DOC is also planning to remove all power restrictions in the 1.8-2.0 MHz. A number of other proposed changes will bring the Radio Regulations into line with current practice. DOC is planning officially to: 1. remove the oral examination requirement for the Amateur certificate; 2. provide for figures, punctuation marks and Q-signals in the Advanced Amateur code test; and 3. relax the licensing requirements for handicapped persons wishing to become radio amateurs. DOC is also conducting a number of studies on interference: interference from power lines, appliances, digital equipment, cable television systems and cordless telephones. Finally, DOC is conducting a study on the possible "restructuring of the Amateur Service". A discussion paper should be available later this year. (CRRL NEWS)

160 m BAND FREQUENCY ALLOCATIONS

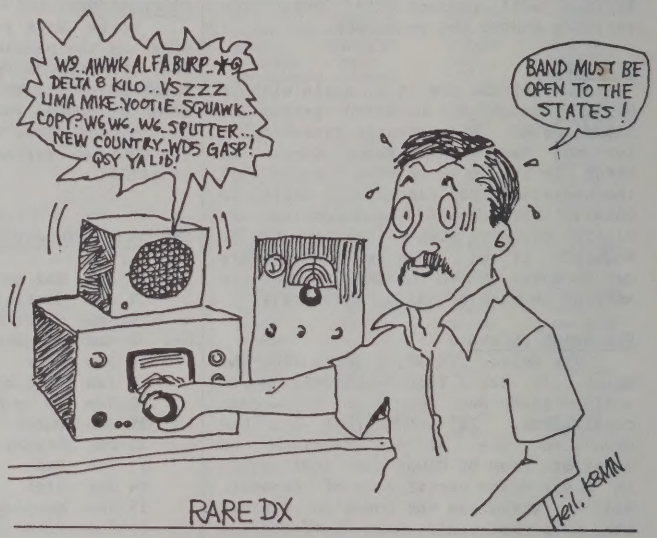
PREFIX	COUNTRY	Khz/CW	Khz/SSB
CT	Portugal	1830-1850	
CT2	Azores	1830-1850	1830-1850
CT3	Madeira Is	1830-1850	1830-1850
DA,F,J,K,L	Fed Rep Germany	1815-1832	1832-1835
		1850-1890	
EA	Spain	1830-1850	1830-1850
EA6	Balearic Is	1830-1850	1830-1850
EA8	Canary Is	1810-1856	1810-1856
EA9	Cueta &Melilla	1810-1856	1810-1856
F	France	1830-1850	1830-1850
FB8W	Crozet	1830-1850	1830-1850
FB8X	Kerguelen	1830-1850	1830-1850
FB8Z	Amsterdam/St Paul	1830-1850	1830-1850
FP	St Pierre/Miquelon	1800-2000	1900-2000
FR	Glorioso Is	1830-1850	1830-1850
FR	Juan de Nova	1830-1850	1830-1850
FR	Reunion	1830-1850	1830-1850
FR	Tromelin	1830-1850	1830-1850
JA,JD	Japan & Terr.	1907.5-1912.5	
JW	Svalbard	1820-1850	
JX	Jan Mayen	1820-1850	
LA,B,F,G,J	Norway	1802-1850	
OX	Greenland	1830-1850	1830-1850
OY	Faroe Is	1830-1850	1830-1850
OZ	Denmark	1830-1850	1830-1850
SK,L,M	Sweden	1830-1845	
SP	Poland	1810-1830	1810-1830
		1850-1930	1850-1930
(also a subband allocation of 1750-1800)			
TF	Iceland	1830-1850	1830-1850
USSR*note	Soviet Union	1850-1875	1875-1950
Y2-9	German Dem Rep	1810-1900	1900-1950
		1900-1950	

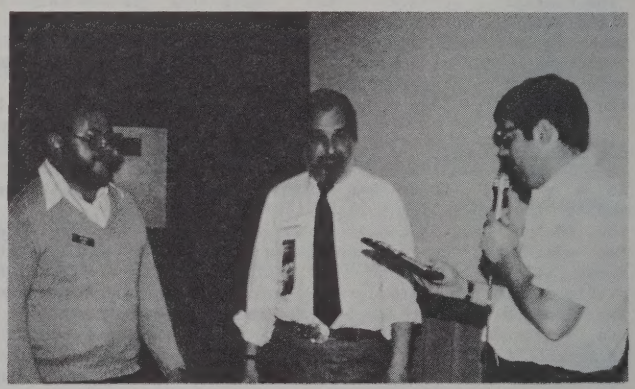


Tower to infinity? No, "just" 200 footer at KN30 being assembled from pieces. 30 inch on a side this beast can hold a small house on the top of it. Heavy duty commercial tower, brand new, was purchased as a scrap. If one looks around, there are all kinds of goodies available.



Doug Grant, K1DG, one of YCCC Big Guns, gave a very entertaining presentation of TV "Contest News" at last year's Hamvention Contest Forum. He is having a similar presentation this year also.


W9..AWWK ALFA BURP..*9 DELTA 8 KILO..VSZZZ LIMA MIKE..YOOTIE..SQUAWK.. COPY? WG, WG, WG..SPUTTER.. NEW COUNTRY..WD5 GASP! QSY YA LID!
BAND MUST BE OPEN TO THE STATES!
RARE DX
Heil, KBMN



Awards presentation time at Dayton. W8LRL Wally Eckles (left) is receiving a trophy from WPX Contest Director Steve Bolia, N8BJQ (right) and CQ Magazine editor Alan Dorhoffer, K2EEK witnessing the presentation. W8LRL is the King of the 160 m band with excellent country set-up with phased verticals and a multitude of Beverage antennas. Wally was also principal organizer and mover behind the world record setting operation of P42E in 1982 CQ WW DX CW Contest from Curacao.

DXpeditioning

Carl Henson, WB4ZNH

One aspect of DXpeditions receives very little attention in Ham Radio publications. Health and how to stay healthy in some developing nations. Obviously, keeping out of the line of gun fire goes without saying, even though several trips that I know of, in addition to our hair raising experience in Uganda, have come awfully close. But that is not the health risk which I am planning to address. After diagnosing an amebic parasite infection upon our return from Africa (I had admitted drinking a nice cool clear glass of water) my Doctor emphasized, "(expletive deleted) you can't SEE the little (expletive deleted describing the marital status of the creature's mother)! If they had gotten to your liver before you came into the office, then we might not have been able to successfully treat it." Interpret that as I might have died. That is a heavy price to pay for DXing!

Don't let your enthusiasm for DXing send you to your eternal reward early. Let us look at some health risks and ways you might avoid excessive exposure to them. Martha recently purchased a book called Medical Advice for the Traveler by Kevin M. Cahill, M.D. I noticed the section on VD and turned right to it. (Might get to see some racy pictures.) Well, if Martha ever had any reason to be concerned about my faithfulness while we were in Africa, then this book swept it all away! There were no pictures but there were some statistics. Dr. Cahill reports that 75% of the HEALTHY people on the street in one particular African country tested positive for syphilis! Enough said.

There are essentially 3 things with which you MUST contend anywhere. They are Air, Water and Food. The air is relatively safe except for mosquitoes and flies. The parasites they carry cause Malaria and Falaria (river blindness). In most parts of the world, the risk of Malaria infection is greatly reduced by simply taking an anti-malarial known as Chloroquine. There are shortcomings here and a potential DXpeditioner should be aware of them. Even while taking the drug, you still might contract Malaria (and you might not find out for a couple of years!) and there is also a possibility of suffering eye damage from taking Chloroquine! That, in fact, happened to me. On the way back from Niamey, Niger (where Martha and I had been unsuccessful in our attempt to operate) I discovered that I could not read to help pass the time on the plane. Fearful that I had contracted the dreaded Falaria parasites, upon returning home, I immediately sought out an ophthalmologist. After the damage to my retina was diagnosed, I quit taking the Chloroquine and went on another drug called Fansidar which is in the sulfa family and anyone with allergies there must beware. My vision returned to normal, almost. I still have some minor difficulty seeing in low light levels. If you are a blood donor, be aware that the Red Cross will not take your blood until 3 years have elapsed since last taking anti-malarial drugs and you have not suffered a malaria attack.

Water and food problems go hand in hand. While most of us take safe drinking water for granted, we must exercise extreme caution while abroad, especially in under-developed countries. Drink only bottled water or beer, unless you KNOW the source. Check the seal on the bottled water. It MUST be intact! Filter, then boil, if you don't have access to beer or bottled water. A camping supply store can get water purification tablets for you if there is a possibility that you will not have any other choice. Martha and I have used iodine tablets a lot, but unfortunately that kills the good little creatures inside of you also. This can be the cause of significant GI discomfort as well. It is a good idea to take along some Lomatil tablets or Kaopectate. The Lomatil is prescription only but sufficient quantities of Kaopectate might cause an excess baggage problem! Hi! Hi!

Another good rule of thumb is STAY OUT OF FRESH WATER. In different parts of the world there are several different parasites, some too horrible to describe here, which you MUST avoid. A recent Public TV series, NOVA, had a special on parasites. If you did not see it then you need to watch for its rerun. Being hot and sweaty is a small price to pay for good health.

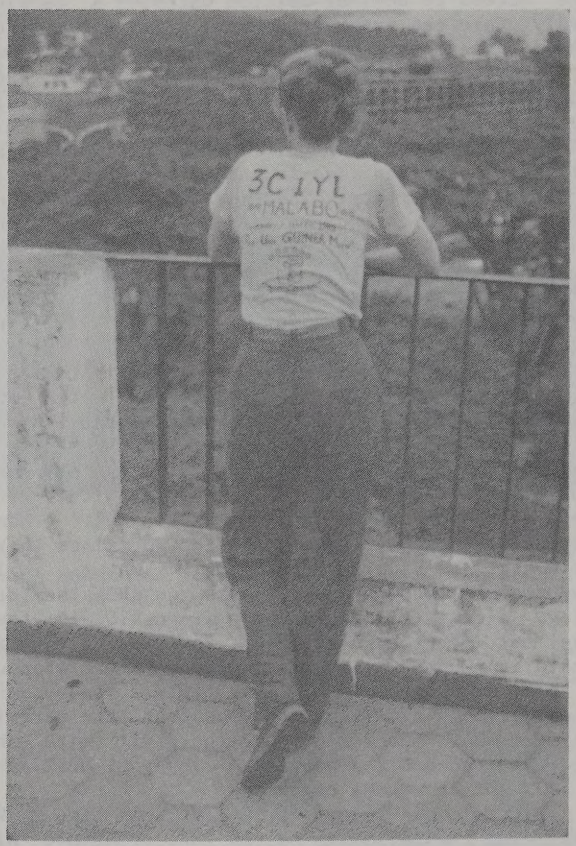
Food can be just as dangerous and a lot more subtle. Don't eat salads unless you KNOW they were prepared by someone as cautious as yourself! Most people wash them in water. In the so-called third world, it is usually contaminated water. Milk products are to be shunned unless you KNOW they are safe. Almost all baked goods are o.k., if they have not been handled. A few years ago in Equatorial Guinea, the bread we bought was wrapped in old newspaper. This was truly a bad sign. Fresh fruit is all right, but you must take care in peeling that you don't touch the fruit with the hand that touched the peeling. The peel MUST also be 100% intact at the beginning.

A little music is appropriate at this time. We will sing the following to the tune of "Don't sit under the apple tree with anyone else but me." It goes, "Don't stand under the Mango tree with anyone, especially ME!" There are little creatures which live in some Mango trees. Their microscopic eggs fall to the ground below. I have been cautioned that if they fall into your hair and are not washed out very quickly, that they can hatch and burrow into your scalp. Yuck!

Phone operators should use a radio with a monitor circuit or not use head phones. The tendency to talk loud because you don't hear yourself at the normal level can cause you to develop a sore throat and through this open sore, more serious infection can enter. Cough drops should help.

I know this column sounds like an essay on why

you should never go on a DXpedition. You should go on a DXpedition, if you can. It is a marvelous and eye opening experience. However, to a certain degree, your eyes must be open before you go, at least as far as remaining healthy is concerned! The potential DXpeditioner should be aware that there are some significant health considerations to be made and DXers should understand the kind of things DXpeditioners might be going through to help them get a new one. Your family doctor will be able to better advise you on specific risks. The Communicable Disease Center in Atlanta (listed under U.S. Government) has a telephone number where you can receive additional information about the country to which you intend to travel. If a person takes appropriate care and pays attention, there is no reason to believe that DXpeditions are necessarily hazardous to your health. They are very addictive, however! (WB4ZNH)



Who is this this young lady? DXers should know! It's written all over her! Many DXers talked to her. What is she up to? Why is she all alone? How does the other half look like? You will find out all this and more in next month's DXeditioning to Equatorial Guinea. Stay tuned.....

****
* *
* IF YOU RECEIVED RADIOSPORTING AND ARE NOT *
* A SUBSCRIBER, IT WAS NO ACCIDENT! *
* PLEASE CONSIDER IT AN INVITATION TO JOIN! *
* *
****

SPLIT CHANNEL OPERATION

ANOTHER WAY TO WORK THE SSB PILE-UP?

ERIK SJOLUND, SMOAGD

Split frequency operation has been practiced by DXers in many years. One of the first to use it on SSB was Gus Browning, W4BPD, on his expeditions in the early 1960s. The main purpose of this method was to keep the DX-frequency in the clear. Pile-ups in those days were seldom that big; most of the time the DX could tune across a few kHz and easily work his way through the pile-up.

The number of hams has increased rapidly and in recent years DXpeditions have been criticized for spreading their pileups across big portions of the crowded bands. But it doesn't help very much because stations in the pileup are interfering with each other and the operation is very slow. It might take minutes for the DX to pick a callsign. This is a very inefficient way to use our narrow bands.

Other methods, like list operations and directed calls, have been tried without much success. We've got new problems like deliberate interference and policemen, one after the other. DXers are impatient. They bought expensive equipment, and they want to use it. They don't want to sit there and wait in line until somebody tells them when to call. Then propagation might be gone.

In these days many of us have transceivers with digital readout and perhaps also programmable frequency memories. So let us try to find some use for those nice gadgets.

During the upcoming 3B7 expedition we will, from time to time, use Split Channel Operation. Instead of asking the pile-up to spread over a portion of the band, we will ask you to zero-beat on specific frequencies.

For example: On 20 m we will be transmitting on 14195 kHz. The operator may announce his receive frequencies to be 14200, -220, -240 etc., depending on the size of the pile-up. We have modified our transceiver so we can scan through 8 memories where we have programed our receive frequencies. Please tune as accurately as possible to the channel asked for. Don't call in between the channels because we are not listening there and we must also leave room for other activities on the band.

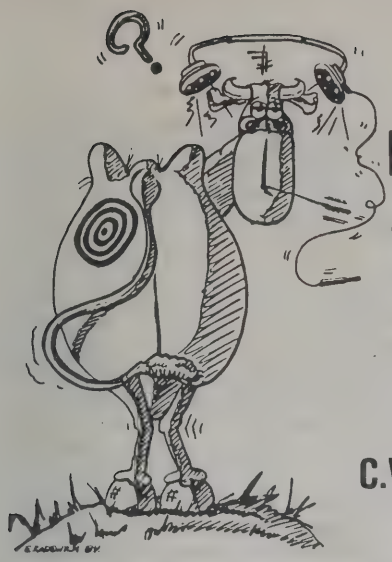
You can tune your TX to one of the channels and you will have a better chance to QSO than you have in today's random tuned pileup. Or you can spend some time listening for the DX operator's receive pattern and QSY with it. Thereby you will make QSO much faster and you'll have fun. Your operating technique will pay off.

I tried this method during my Pacific operation in 1982. I found it very fast and efficient. I could increase my QSO rate by quite a bit over my normal standards. But the method was new to everybody and many stations never found out what was going on. It is important to spread the information. Otherwise, we will have the same complaints as in the past about DX pileups covering most of the bands.

If we find this a way to go for future DXpeditions, we might get certain frequencies accepted as DX channels.

On CW we will operate like we always did, listening a few kHz up or down.

Please give us a call. 73 ERIK, SMOAGD



HERE'S THE BEEF

C.W. Bug, NØ/FØOL

The ham radio market is a tough one. Hams are probably the worst customers one can get. A typical scrounger wants to buy a Collins S-Line for a buck and will still feel cheated. But he is getting more and more for his buck. We are seeing some influence of the silicon chip on the price/performance of today's radios. Finally ham radio manufacturers are catching up with the rest of the industry, mostly in the land of well disciplined JA operators.

Where are the old traditional American manufacturers? It looks like they gave up on hams and flipped to more lucrative and forgiving commercial markets. On the one hand you don't blame them, they know where the bucks are. On the other hand, it is sad to see the old favorites go without taking up the challenge. (Maybe if they had some contesters on their staff, they wouldn't give up so easily.)

It all comes down to price and performance. As we get more educated and understand the bells and whistles better, letting the calculator figure out the bottom line, one can't help it: those good looking boxes from JA-pan land look better and better. We see this trend in cameras, cars, radios and computer peripherals. It is harder to fool customers with bombastic advertising if there is a chance to compare products. Facts speak.

How about taking up the challenge? It takes a bit of technological literacy, a lot of art to manage people, and tons of willingness and determination to do it. The main thing is to keep one's nose close to what the user needs, rather than trying to ram something down customers' throats.

There are a number of companies, mainly newer ones, who are taking this challenge up and doing a super job to provide high quality products at a decent price. They deserve our support. Those trying to sell us $20 resistors for $1000, claiming they are antenna wondertuners, can't go too far.

We are seeing prices on used equipment and older models drop very rapidly. This provides excellent value for those hams who don't have much in the bank but are willing to play around with oldies. Some modifications can dramatically improve the performance of old clunkers for a fraction of the price of new models.

Using some ingenuity and snooping around potential sources of material, one can come up with some super buys on towers, aluminum, used equipment, etc. It is the old story: if you don't have money but are anxious to do some extra work, you will succeed. The most important thing is that you will learn and gain some experience. If you later get hold of the latest radio marvel, you will appreciate it more and will be able to get more out of it.

What are some of the good buys lately? To name some: Drake twins, Collins S-line, Kenwood transceivers, ICOM, Yaesu and other older models can be purchased for a fraction of their original price. This price drop was accelerated by the improved performance of the latest radios at a small increase in price. As a result of this, a lot of top dogs are dumping the older radios, making them very attractive for those with limited budgets. With some modifications and realigning they can bring many hours of pleasure.

Hey, have you seen Kenwood's response to TS-930S review in RADIOSPORTING? They are already out with new TS-940S incorporating some of the suggested changes. Now that's fast response! Maybe we ought to give them more hints and get the "dream" radio for decent price.

We are getting close to a scene where radios will be so smart that you can send them to take exams and get licenses. Then they would be programmed to behave like a hams and not like animals, so peace will return to the ham bands. I can't wait for that day! I hear that they would prefer CW over garbled, compressed, decomposed audio of some SSB operators. (CW is coming back to haunt you Wayne!)

There is an article in the April issue of QST about the Dummy Dipole, alias Maxcom Antenna Matcher. You can build this $1000 "tuner" for $20 and use the rest of the saved money to go on a second-honeymoon expedition. Or you can go in the business of making them and selling them to CBers and governments for 50% less and still make a killing. You don't need a factory to make them, just your tool box.

For those who are really lazy, try a light bulb for an antenna. Let's have a competition to work DXCC using a light bulb and let's say 100W. We will publish the standings and have a trophy. You can do anything with a light bulb. You can mount it on the tower, or keep it in the basement. I'll tell you little secret: get the bulb with the longest filament. They work better. Also pick the one that has 50 Ohm "impedance". You can use anything for receive, but only a light bulb for transmit. Who is going to be on the Honor roll first? Looking for a challenge? Here it is! Just don't tell Maxcom about it; they would sell the bulbs for $500.

Our hobby includes various "forces" working for or against us. While we want to keep the bands sane, the ham radio industry wants everybody to be licensed and have at least three stations. Lets try it, but lets keep the sanity on the bands so we all can enjoy it for years to come. Magazines are in the same boat. RADIOSPORTING is to be applauded for trying to promote numbers through quality and sportsmanship, rather than through derregulation. Where would it all end up if we were deregulated? Have you tried lately to find a spot on the band, let's say on the weekend when propagation is good? It's wall to wall, and it doesn't have to be a contest weekend. We already have an example of what deregulation can do by looking at the CB scene. I just can't understand why they don't focus on those guys. It's all there: no license, no exams, just jungle.

I urge you to follow the developments and throw your support behind those who promote quality, be it publishers or manufacturers. You have "voting" power by buying their wares. Use it wisely and preserve the hobby for our children too! Clara,FOOL

40 METER PHONE BAND EXPANSION

Walt McGugan, W3FG

By now you have surely heard or read about the expansion of the 40 meter phone band for amateur stations in KH6 and KL7 land. The March 1985 issue of QST reports that KP4AM has filed a petition with the FCC proposing a similar expansion for KP4 and other U.S. Caribbean territories. One of the reasons given by KP4AM is that "during nighttime, the segment above 7100 KHz is almost useless due to...interference, especially from broadcast stations. This particular situation does not exist in the continental states".

I am relieved to hear that we stateside hams do not have a problem with broadcast station interference above 7100 KHz. Nevertheless, the time now seems ripe for those of us on the mainland to join the 40 meter phone band expansion "band" wagon. I propose that the PVRC file a petition with the FCC on this matter and I have listed below a number of points that should be included in our petition. I expect these points to be discussed further at the March 11 club meeting. (Anyone not showing up will be appointed to a committee to draw up the final petition).

1. General, Advanced, and Extra class amateurs located in the mainland U.S. shall be allowed SSB privileges in addition to existing CW allocations, in the 7030-7100 KHz band segment, subject to several minor restrictions listed below.

2. Realizing the valid concerns of many DX stations over the amount of QRM that would be caused by U.S. amateur operation in this band segment, U.S. amateur SSB operation from 7030-7100 KHz will be restricted to the following time periods: a) the 48 hours of the CQ World Wide DX Contest (phone weekend only); b) the 2 hour period immediately preceding the CQ World Wide DX Contest phone weekend for the purpose of station testing and establishing your frequency; c) the 73 Magazine 40 meter SSB Contest, provided contacts are with DX stations; and d) during the 40 meter operation of any announced DXpedition, provided the contact will result in a new country on 40 meters SSB. For the purpose of this point, an "announced DXpedition" is defined as one appearing in any recognized DX bulletin published at least 12 hours before the DXpedition starts, or a DXpedition announced on a local 2 meter spotting frequency.

3. Power limitation - Output power in this band segment shall be limited to that level currently established by FCC regulation. Exception: Any station operating zero-beat with a foreign broadcast station stronger than S6 at his operating QTH may run 2.5 KW output power. Any station operating zero-beat with Radio Moscow may run any output power whatsoever, provided said power level does not interfere with the safety of commercial aircraft operating in the general vicinity.

4. During the CQ World Wide DX Contest phone weekend, only BIG GUN stations may call CQ Contest in the 7055-7080 KHz band segment while the band is open. For the purpose of this point, a "BIG GUN" station is defined as a station that is running Europeans at a rate of 30 or more per hour or JAs at a rate of 36 or more per hour. Any station claiming BIG GUN status who has not, during any 10 minute period, worked 5 Europeans or 6 JAs immediately loses his BIG GUN status and may not call CQ Contest in the 7055-7080 KHz segment for a period of 30 minutes after losing said status.

5. In regards to point 4, any station may answer a DX station who is calling CQ in the 7055-7080 KHz segment, provided the contact is a new multiplier. Exception: During the last 3 hours of the contest any U.S. station may answer any DX stations who is calling CQ in the 7055-7080 KHz segment, provided the operator thinks the contact is not a dupe.

6. During the CQ Worlds Wide DX Contest phone weekend, any U.S. station located within 500 miles of the Canadian border may call CQ VE anywhere within the 7030-7100 KHz band segment. In order to avoid conflict with point 4 above, calling CQ VE between 7055-7080 KHz is permitted only during the time period from 2 hours after local sunrise until 2 hours before local sunset. The times of local sunrise and sunset shall be determined by watching a weather report from the TV station located closest to your QTH, or form the Farmers' Almanac.

7. During the CQ World Wide DX Contest phone weekend, any U.S. station contacting a UA6 may, as a bonus for this rare accomplishment, call CQ Contest anywhere in or near the 40 meter band for a period not to exceed 20 minutes. This bonus may be taken only once during the contest weekend.

(YCCC Scuttlebutt)

QUIET POWER

Mike Bellinger, KOUAA

Some of you may be aware of a national amateur radio survey that the FCC recently conducted. This survey, in part, dealt with amateur power levels on the HF bands. Some hams in the Kansas City area cooperated in this survey. I talked to a couple of these local hams and they revealed some of the typical information that was gathered.

The hams were asked to operate their stations using their HF amplifiers while FCC personnel were present in the shack. In the cases I know about, the SSB mode was used. The FCC took power output measurements using their own instrumentation. The hams were asked to make a contact and get a signal report. They were then asked to get another signal report after power was cut in half. The FCC obtained additional information pertaining to receiver sensitivity and selectivity, antenna gain and front-to-back characteristics. The hams also were asked if they had received any recent RFI complaints, and how frequently they used their amplifiers.

According to James Dailey, FCC Engineer-in-Charge at the Kansas City office, the survey was initiated by the Field Operations Bureau. This is the office responsible for, among other things, the enforcement of amateur radio regulations and the handling of RFI complaints.

Dailey related a case in Iowa that raised questions that this survey hopes to answer. This is an RFI case where the ham involved regularly used an amplifier and installed an Inverted Vee antenna as close as ten feet to a neighbor's home. The FCC became involved in the resulting RFI case and recommended the ham reduce his power and move his antenna. The ham refused to follow the recommendations, and cited that he is allowed by FCC rules to run the power level he does. The neighbor, likewise, refused to adopt measures that should have reduced RFI susceptibility. What they would do, however, is stand their ground and complain to whomever had the patience to listen. These complaints made their way to the FCC and various influential legislators. The case has the personal interest of the FCC Chairman.

At this time the only available sanction in an RFI case is to impose quiet hours on a ham. The FCC doesn't have a mechanism to compel a ham to reduce power levels to alleviate an RFI condition. There is a regulation that says hams shall use the minimum transmitter power necessary to carry out desired communications. It appears that this survey is an attempt to get an objective handle on this somewhat subjective rule.

In the local cases that I know about, the survey was conducted during regular FCC office hours of 8 to 4:30. In both cases the hams were older retired persons. Do you suppose these hams made their test contacts in heavy QRM, in a contest, in a DX pileup, or under weak signal conditions? Do you suppose the initial contact under full power resulted in anything less than armchair copy? Do you think a 3 db reduction in power resulted in the loss of the contact or even any reduction in readability? I suspect the survey would reflect the type of ham activity you normally would expect to find on the HF bands during weekday daytime hours.

While this survey was being conducted, another interesting related case occurred in Texas. According to Dailey, FCC inspectors made a call on a ham who had turned his recreation room into an amplifier. He was caught running in excess of 20 kW output! Needless to say, this story has probably grabbed the attention of higher-ups in the Commission too.

We'll have to wait and see what regulatory and/or enforcement changes might be made based on the findings of this survey. If FCC action is forthcoming, we should probably thank hams who feel they must relinquish their "rights" in order not to stick it to their neighbor. The FCC may add, to quiet hours, the sanction of quiet power. (Kansas City DX Club Newsletter)

N4MM RECEIVER AWARD

JOHN C. KANODE, N4MM, from Boyce, Virginia, has been awarded the ARRL Roanoke Division Special Service Award for 1984. This award is given to one amateur in the division each year for outstanding service to amateur radio over a period of many years. John, an Extra Class holder, has been active in the hobby for 33 years and is currently a National Director for QCWA, ARRL Vice Director and League Board DXAC Liaison. He holds life memberships in ARRL, QCWA, AMSAT and IARC, and has been president of several well known ham clubs. The Special Service Award was created by the late Vic Clark, W4KFC. (Westlink Report)

W2PV ON ANTENNAS

PART 5

YURI BLANAROVICH, VE3BMV

This is the conclusion of "W2PV on Antennas" series, which was transcribed from the tape recorded during Jim's presentation at the Toronto DX Club and Ontario Contest Club meeting few years back. This last part presents a question and answer period and touches upon some of the popular questions often asked. Jim's answers reflect the many years of experience and are the results of theoretical studies and practical work. We do not have all the slides Jim has used, only those that I have taken while visiting W2PV station. Please use your imagination where pictures are missing.

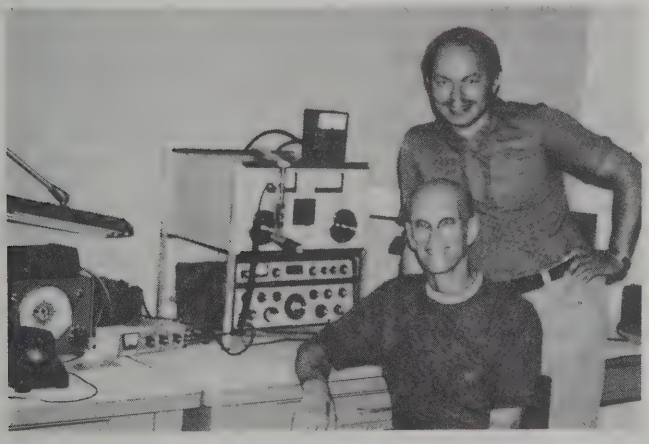
My sincere thanks to Mike Spenuk, VE3JTQ and my XYL Sonya for transcribing the tapes. We have tried to preserve the accuracy of Jim's excellent presentation, which will probably remain the classic for years to come.

Personally I am extremely thankful to Jim for agreeing to be taped and letting us preserve his voice and making it live among us as a great memory.

For those who would like to obtain a copy of the tapes and drawings for your club meeting presentation or personal collection, they are available for the cost of reproduction.

We are all eternally grateful to Jim, W2PV for all the work he has done in our field and for showing us a shining example of a gentleman ham, DXer, contester, scientist and great friend. May his example lead us on the path to excellence.

In the next issue we will have an article on W2PV 4 el. Yagi design by Bill Meyers K1GQ. We are looking for articles, notes and recollections from those who preserved anything from W2PV's work or personal experiences. Let's put it on record for our younger hams with hope they will get inspired and follow in Jim's footsteps.



Two friends brought together through contesting. Jim Lawson, W2PV (sitting), and author, VE3BMV, at Jim's shack in Schenectady, NY. One of the six operating positions is sporting a Signal One CX11 transceiver, an Alpha 70 amplifier and a control box for the Bertha. Obviously, Jim was also involved in phone patching as is indicated by the Heath phone patch and the telephone on his desk.

Now Dr. Jim Lawson, W2PV:

STATION DESCRIPTION

The station originally consisted of a single tower on one acre of land. This has now been expanded to three towers on four acres. I've had the Telrex Bertha system for manv years and its been an extremely good antenna altogether. In fact, it's a very hard antenna to beat with any other system. I know because I've tried other systems around it and All Band contests prove my point.

Those of you that buy just one antenna and think it's great and can't be beaten are very fortunate. But when you have the A-B test, things become clearer to you. The Telrex system is a remarkable system. It of course has the big pole, 116 ft high, which fully rotates. I have a number of antennas on it. It starts with a 6 el. at the bottom and a 6 el. near the top for 20 m. These are on 46 ft booms. Just in between them is an 8 over 8 on 15 meters (46 ft booms), and in between that is a 10

Looking up through the Big Bertha's top half of the stack. All antennas were on 46 ft booms

over 10 on 10 meters. That produces a very sharp beam, perhaps too sharp for contesting, but it's a tremendous antenna if you want to lay down the signal on 10 meters some place. At 85 ft there is a 3 el. 40 m beam. It works quite well. The tower also supports a 6 m beam and a 2 m beam which I really don't use much anymore.

The nice thing about a Bertha is that everything will rotate. The bad thing is that in a contest everything is pointing in the same direction. So that's one of the reasons that I have had to build alternative antennas for the other bands.

The two other masts that I have are 180 ft and 150 ft. The 180 ft mast holds a 3 el. rotatable 40 m beam at the top and a 3 el. fixed 40 m beam aimed into Europe. I really need all of these antennas because there have been times when Oceania, South America and Europe are being worked at the same time in the contest. The 150 ft mast holds a 7 el. Wilson 20 m beam at the top and two KLM "Bigsticks" (5 over 5) fixed on Europe.

I had hoped to use the KLM's when the Telrex was pointing elsewhere, but it turned out that they never worked as well as the Telrex. I am not sure why. There is a 1-1.5 dB loss in the feedline to them, but that isn't much difference. There is also about a 1 dB loss in gain because they're not quite as big. But in actual fact, they are down about 3.5 to 4 dB.

The guy lines supporting the two guyed towers are all broken up into 27 ft pieces with insulators so I don't think that there are any resonances in the guy wires.

I also have fixed 4 over 4 on 15 m for the quick switch south. That's been quite handy when the Bertha is aimed at Europe in a run and some South American calls. It's a simple quick switch to work the South America and go back to the European run. I got a tape back from one of the Italians who was taping us in one of the contests. It was very interesting to hear because we were working the Europeans that the I's couldn't hear very well one after the other, then suddenly our signal almost disappeared to nothing from 20 over 9 (we worked a SA station) and then came right back. This demonstrates the advantage of the quick switch so that the rate is not lost.

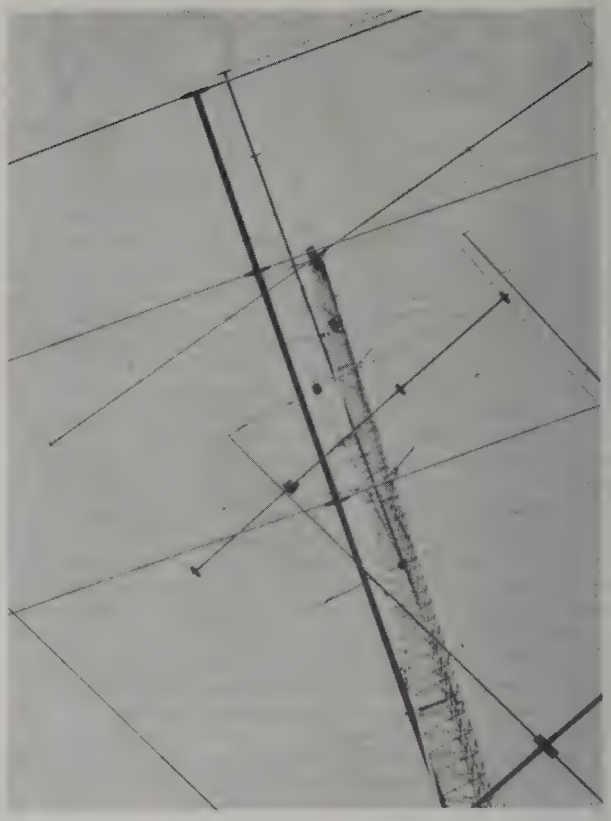
For 80 meters, I am using a dipole strung between the two towers at the 150 ft level, and orthogonal to it is a two element Delta loop system at 165 ft. The Delta loops give me a F/B of 16 dB and a gain of about 5 dB. I also have a sloper on 80 m and also a long beverage, 10 ft high, for listening. The beverage is a low angle device and it cuts out the U.S.A. QRM.

I also had four ten meter beams fixed on Africa, Oceania and a south one, but I have now replaced them with a 6 over 6 almost fully rotatable. It rotates 300 degrees. I am blind on XE, but that's nothing because I can work XE with anything.

The cabling for the station consists of 8 runs to the rabbit hutch. I'm also using some 7/8 inch foam and some 1/2 inch hardline.

If you are careful about guying you can hang an enormous amount of aluminum up there. What will break is the antennas, not the mast. The big Wilson has broken once. We had an actual wind velocity of 103 mph and it broke the boom. It broke about a month before a contest and we couldn't fix it in time so we ran just the 4 elements of the 7 element beam during the contest. It worked o.k. but it wasn't as good.

Those of you that put beams on top of things might like a few hints. What I built was a T-section pipe. The T-section is fixed and these bolts can be removed one by one. If I remove one bolt I can tip the whole antenna on the other bolt and it misses the tower. So I can tip it down and I can take the elements off and disassemble the boom and everything. I can completely disassemble or assemble the beam on the tower so I don't have to worry about moving a monstrous antenna through guy lines. I use 3/4 inch bolts for safety.



View of the "20 m tower", with 7 el. 20 m Yagi at the top, two stacked 5 el. KLM and variety of 10 and 15 m fixed Yagis. There were two towers like this one, both 180 ft high and loaded with various combinations of monoband antennas. High dipole for 80 m band was suspended between both towers. Everything was well documented and notes were kept on all the changes and modifications.

Guy straps are used on the side of the boom of the 80 m antenna to keep the boom from turning. The problem with the U-bolts is that when you get them tight enough you almost always bend something. This increases the likelihood of failure. So I just tighten the U-bolts to a reasonable tightness, then I use a strap to keep the boom from turning.

I just wanted to say a word about winter tower climbing. It's not much different than in the summer, just a little colder. I wear some ski mitts (not gloves) and I tie them through my jacket just the way the school-kids do so that I can pull off a mitt and it never drops to the ground. I also wear silk gloves under the mitts. They give you full finger dexterity and you never freeze your fingers on metal. It's nice to do in the winter time. You get on your cross-country skies and you ski out to the base of the tower, get off the skies, get out your climbing belt and away you go.

QUESTIONS & ANSWERS

Q) You used to have four phased verticals. What happened to them?

A) I took them out because I couldn't get the ground adequately efficient. We have such poor soil and I refuse to pave everything with copper. Furthermore, I'd have to pave my neighbors place with copper, or you wouldn't get the reflection. I think anybody with a poor ground has a problem with verticals. My opinion is that unless you make halfwave verticals, which can be fairly efficient, your injected current in the ground is going to cause problems. But they do have the gain.

Q) Is your 5 over 5 over 7 stack capable of being phased together or run independent? How do you accomplish the switching?

A) It's kind of complicated. The thing about an upper, lower or both switch is that it must maintain a constant impedance. You have to do this with quarter-wave transformers, 70-ohm transformers. Three PR-11 relays and two quarter-wave lines will do the job. It's not too complicated, but you can maintain impedances so it's good. I can switch any combination. Each beam by itself, the bottom two, the upper two, or all three.

Q) Do you use a ground system?

A) No, I don't believe in ground systems. Since I've tried the verticals, I've had such a hard time trying to get a good ground system that I've concluded that horizontally polarized radiation generated by high antennas, which doesn't need very good ground, is much easier. One theorem about ground says the following. There is no way to do it properly. If you bury a wire in the ground, any current that wire carries generates a magnetic field in the earth ground and losses in the ground. So that everything will be lossy if it's buried. If you raise that counterpoise above the ground, you now make it efficient, but you must make sure the electric field does not leak through to the ground. Otherwise, you get currents in the ground again. That theorem further states that the average spacing between radials ought to be its height over ground. Those of you that build a ten foot high counterpoise should make 75 radials. This will be a very good system. But if you bury it in the ground you are guaranteed to have losses almost forever. However, if I raise the system high enough, I can get by with only 3 to 4 radials. That's called a ground plane and it's very efficient. Better yet, if I can get the whole thing high enough I can take all the radials and bend them straight down and then I'll have a halfwave dipole and that's very efficient.

So I've ended up saying that if you are going to use verticals, use halfwave verticals or high ground planes, and forget about the business of burying wires in the ground. However, if you have a swamp then the ground system doesn't matter. Those with the swamps, like W1CF, have great success with the verticals. So if you're lucky enough to have swamp (and don't mind it from the aesthetic point of view) don't worry about ground wires.

Q) What do you think about the commercially available antennas?

A) I've simulated a good majority of the antennas. But someone will always ask, what should I buy, A or B or C? I then have to ask what car do you buy? Is there a car that you know that has all the right virtues? No, there isn't. Telrex is a great antenna, but I have to put it up in one piece because I can't take the elements off. They come through the holes in the sides of the boom. KLM's are great, but they have a broader band on its driven part. Dipoles aren't as broad banded. It means that if I measure SWR, I get a better feeling about it, but the antenna itself is actually narrower band. It's also too flimsy. I'm sure it's going to fall down. It uses flimsy little elements. But it's up to you to choose what you want. Nothing has all the virtues. A homebrew antenna will have more of the virtues than a commercial one, but you have to build it and that's a lot of trouble.

Q) Do you see any height advantage when using an antenna say at 120 feet versus 180 feet?

A) Yes. Under some conditions of incoming signals the lowest antenna will do best because its high angle stuff coming in. Other times the higher antenna will run rings around the lower one. For example, the high antenna is a band-opener into JA. There is no one single set up that will work great under all conditions.

Q) There's an "old wives tale" that for every 20 feet up you go, you buy another S-point.

A) All I'll say is that if your on 20 meters and your antenna is at 30 feet then you are really quite low. You remember the curves that I showed indicating an optimum height of 100 feet for 20. But you gain a lot going from 30 to 50 ft, a little less going from 50 to 70 ft, and still less going from 70 to 90 ft, and almost no advantage above 100 feet. I'll say one word about S units, too. All S units are different! First, they are improperly reported. For instance, any signal I can hear in a contest is 5x9. I never give anything else because the objective of a contest is to transfer a message and not to be accurate. You can't trust S reports from that point of view.

Second, if you measure them, you will be very unhappy with the results. One meter might indicate 1 S unit is equivalent to 3dB, others might be 6dB. If you want to measure them objectively, I think you can use the curves that I have presented and get a fair idea about what is happening. It means really that above 100 feet you don't gain too much for a single antenna on 20 meters. In fact, if you go too high you will certainly lose a lot, as I did going to 180 feet. But those of you with 30 foot high antennas would be strongly advised to try to get them to 60 feet if your wife or the local ordinances will allow. It will make a difference.

Q) You talked about simplistic beams and the director and reflector lengths. How did you arrive at the appropriate lengths and how do you go about tuning these antennas?

A) That's a good question, but it will take a

whole lecture to answer. Let me just summarize what it involves. In the computer simulations, I start with the argument that the element is a cylinder and not a tapered element. When I started this some years ago, I had to decide what is important about the cylinder. I decided that its resonant frequency is important. And also its Q. You can calculate the Q of a cylinder quite easily in terms of the reactance and other parameters. I put those calculations in the system quite a while ago. I didn't realize for a long time, as I do now, that when you build an element it's not a cylinder, but rather a tapered element. It's fatter at the center than at the ends. Because of this tapering the element must be made longer by a big amount. For example, a 20 meter beam element which is about 35 to 36 ft long must be stretched about 20 inches when tapered the way the Wilson beam is tapered.

So when someone asks what the dimensions of the element should be, I have to ask what the taper is. That's the more important question. What I had to do is work out the correction due to the taper and put the result back in the formula for the cylinders. I have now a procedure in which I can take any taper and calculate what the correct element length should be.

I have done this for the antennas and the first validation came from W4DR. I gave Bob the dimensions for a 4 element beam and when he put it up he said that it worked great, but instead of the best F/B at 14.250 MHz, it was at 14.000 MHz. I went back and I realized that I didn't make the taper corrections correctly. I've modified my calculations and now everything is right on the button. W4ZC has also used one of my designs and he thinks it's a fantastic antenna as well. That's a 4 element beam with a theoretical F/B of 26 dB and he's getting close to that.

Q) Is wide spacing a good thing to have?

A) No. Well, for a single antenna with no interactions you can make an antenna with wide spacing, like 0.2 wavelength, and it won't be any different than 0.15 wavelength spacing. The gain will be identical. It isn't more broadbanded either. The bandwidth is sort of dependent on boom length. It gets narrower with the longer boom length. But, the more elements you put on the more windage you have. This leads to all kinds of problems like broken rotators.

However, if you stack the antennas there will be less interaction between the two antennas if you have a lot of elements which couple well with each other. They aren't going to couple well to the other antenna. I noticed this with the KLM beams. With one I had a 25 dB F/B, but when I stacked them it went down to 12 dB. When I ran the simulation through the computer, it came out with the 12 dB F/B, too.

Q) You have only discussed monobanders. Have you done any interlacing of elements for different bands on the same boom?

A) I've examined what happens in that situation, but I haven't been able to come up with a good model for electrical screening. What I mean by that is the following. If I have a single boom and I assume that the electric field or the magnetic field at an element due to current in another element is independent of anything in between. I've calculated that and it's quite easy to show that putting them all on the same boom is not so bad. It's not really any worse than putting them four to five apart. You do get interactions.

But the electric screening is a very big effect. If I happened on my boom to be unfortunate enough as W1ZM was when he tried it, to put the big element right next to a little one, it is clear that the big one will be at ground potential at the frequency of the little one. The big one is going to act like a ground screen and it will reduce the electric field and the coupling. What it amounts to is that the high frequency beam gets spoiled. You rarely spoil a low frequency beam by interlacing, but the high frequency one can be ruined. If you interlace them enough so that they are far enough apart that you don't have the electric screening effect, that's O.K. But each case has to be considered individually.

Q) What about mounting the antennas on top of buildings or against the side of a house? How does that affect the angle of radiation?

A) The height calculation you have to make is the height at which you get the reflection. Suppose I'm on top of a 200 ft building and I'm sitting in front of this lake. The question now is, if I'm receiving a signal that's arriving at 5 degrees, its reflection may end up in the lake. If it does, then your height is the height over the lake. However, if the reflection comes down and hits another building and never gets out, then that's bad news. You probably just have the height above the roof. It's a little difficult to know exactly.

Q) When one is building a beam, should the elements be made as large a diameter as practical?

A) The larger diameters give you broader bandwidth because they give you a lower Q. That's desirable. But they also give you more windage which is a problem. Mechanically they are better because they are a larger diameter provided the wall thickness is proportional and that's good. But on the other hand, the larger diameters cost more to build. So there is good and bad points and you have to decide yourself. Personally, I like an antenna that is more rugged than the normal commercial beams. Generally, I find the commercial ones will break in a wind when covered in a thick coating of ice. I've decided that it's harder to maintain a big system if it's marginal to begin with.

Q) Do the antenna formulas in the Handbook consider element taper?

A) No they don't. They assume a cylinder. W6SAI's books all assume a cylinder. I think that's what happened to Wilson. He took those numbers and built up a tapered beam for 40 m, but didn't consider the taper. They went from about 2 inches at the center down to about 5/8 inch at the ends. That's an enormous taper. The result was the elements were way too short.

Q) Can you use a grid dip meter to find the resonant frequency of an element?

A) No way! The element's Q is not that high. I've tried coupling the grid dip meter magnetically at the center or electrostatically at the end. If I make enough coupling to see, the coupling is so large that its messed up the resonant frequency in the first place. I don't even bother with it. I can design the element and I know it's right without measuring it. Also, it makes a difference whether or not the element is by itself or already mounted around other elements. In the antenna system, it includes all the mutual couplings that exist in the system. It's a complicated thing to measure and we don't have a good way to measure it. That's the thing that is currently protecting the guy that's selling the antennas that aren't really working well, but you aren't going to know.

Q) How have you compensated for inter-station QRM when operating multi-multi at W2PV?

A) Filtering on a MM station is a very complicated issue. What I have found is that I have to provide receive filters. Generally, I make three stage Chebyshev filters for each receiver. They are usually 1-1.5 MHz wide which guarantees that adjacent stations aren't going to get in much to the receiver.

If I have a 20 meter station and a 15 meter station, I have to make a receiver filter for the 20 m station that will keep out the fundamental from the 15 m station because it's producing radiation from an antenna that's only 7 feet away. But I have found that's not enough because the 15m station not only makes a 15 m signal, but it also generates 20 m noise by virtue of broadband noise due to tubes or something. It's usually about 60 dB down from the fundamental, but that's not enough. My main concern now is to have a transmit filter. Usually a simple one with a Q of about 10 to keep broadband noise out. You guys that are just DXing are lucky because you don't have to worry about this.

Q) I have a 20 m beam up 50 ft on a tower and I am sitting by the lake. I get into Europe like gang-busters, but very poorly into Japan.

A) The European angle is definitely higher than the JA angle. In Europe, I think you need about 10 degrees or more which your antenna is doing across the lake. In the other direction you want a lower angle for a lot of reasons. For instance, the distance is greater to Japan than it is to Europe. So the higher antenna will be better. The guy with the 100 ft antenna will beat you out into JA every time. But if you put the antenna to 100 ft., then you have a problem into Europe because now you are too high. This shows the advantage of Alternative antennas.

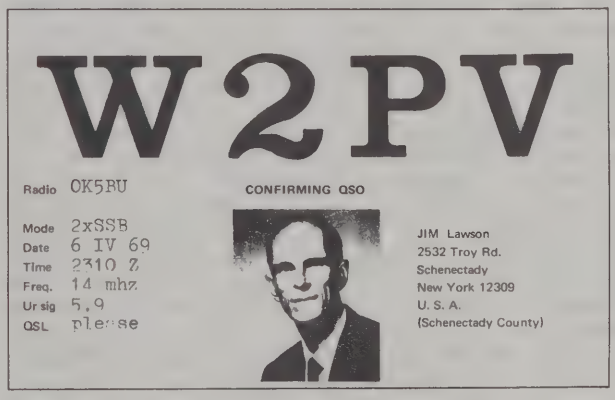
Q) Are any of the commercial antennas designed with the correct dimensions?

A) Hy-Gain comes close to the dimensions they should be. Wilson isn't all that bad in some of his designs either. For instance the M155 15 meter beam is a much better design than most of their other beams. The M520 is not very good. The F/B is only about 12 dB. That's exactly what W4DR's problem was. He had a 520 and wanted to know what he could do with it. I told him that he had two options. The first choice was to lengthen the boom to 54 ft, which is a very good length for 20 meters, and put 5 elements on it. I gave him the proper dimensions and he made the changes. Now, instead of the 12 dB F/B, he measures 30-35 dB. But he's disappointed in the gain. Actually, anyone would be disappointed when trying to compete against the stacked beams and big power.

When I say power I mean those guys running the 3x15000As and the 50000As which are sitting around the country. To be honest about it, I don't like running power and I usually don't. When I was down in Georgia giving a lecture, they told me that nobody down here runs less than 10kW. Well, I don't do that and I told them that they were in the wrong game. I'm not inditing them. All I'm saying is that if some guy has a big signal, you have to wonder whether he's doing it with an antenna or something else. But the antenna is the thing to have because you can do things on receive as well.

Q) Do you recommend to put 4 elements on a 40 ft boom for 20 m?

A) Yes, but if you do that I recommend a different spacing. It's an odd spacing. The computer says that I have to put the reflector very close to the driven element and the first director very close to that and a long space to the second director. That's the dimensions I gave W4ZC and he built up one and it worked great. K1XX has also put one up and it works well, too. (VE3BMV)



Precious remainder of friendship accross the ocean. This QSL was confirming one of my last contacts as OK - boy, using special prefix OK5. Then I was OK3BU and used name "Yura" and always admired that W2PV "beacon" in the contests. One of firsts to be heard and one of lasts to go out with the folding band. In those days I didn't even dream that one day I would be able to meet W2PV and shake his hand after his lecture at Dayton Hamvention. (VE3BMV)

MORE LISTENING ON 160

FRED HOPENGARTEN, K1VR

Since writing on the subject of listening on 160, for an article which appeared in the February, 1985 issue of RADIOSPORTING, I've kept up my attack on improving my reception on that band. Here's the update.

Birdie

In the first article, I mentioned local broadcast station garbage and cordless telephone as sources of birdies across the band.

A problem with a third layer of birdies, not solved until K1MEM gave me the answer, was a weak birdie every 15 kHz or so. Actually, it is a birdie every 15.75 kHz. The source? Our household TV sets, even the three week old Mitsubishi! Why? Try multiplying 30 frames per second, times 525 lines.

K1MEM proved it was a household TV set by simply turning off our living room Sony. And I had always wondered why 160 was so much quieter after everyone went to bed!

My temporary solution? From now on, during contest evenings our family will read. For the long run, however, I'm looking at new EMI/RFI sprays to coat the inside of the TV set. I'm also going to write to the manufacturers to see what they have to say. Dear Reader: Do you have any suggestions?

Noise

Readers of the previous article will recall that W1RR was experimenting with wires under his Beverage antennas to improve the ground even more. Well, here's the disappointing news. He finds no improvements. So discard that thought, and just concentrate on getting a few 20 to 40 foot radials out from the ground rod planted at each end of your Beverages, to make that ground look better.

However, another source of noise was discovered by diligent effort, and with the help of Boston Edison (the local power company). Fortunately, Earl Sunderland, N1AXG, works there as their noise sniffer (though I'm sure his title is more elegant). Whatever his title, he was a tremendous help.

I had been hearing a noise from the northeast. It was from the northeast on all my directional antennas: Beverages, 4 element 40 meter ColAtchCo vertical phased array, and TH6-DXX at 30 meters. I arranged to leave my beam pointed at 60 degrees, the direction from which the noise peaked up on a dead 15 meter band, so that N1AXG would know what direction to look. It didn't take long.

Using a 150 MHz battery powered regenerative receiver, and a hand-held five element yagi, he found the source on the next street toward Europe. After locating the house generating the noise (no, it wasn't coming from a pole), he was able to gain entry and find the culprit--an elderly woman's heating pad, used to keep her warm when sitting in her living room.

Of course, in gaining her confidence to let him in and look around, it helped that he was driving a yellow car, wearing a yellow hard-hat and jacket, and carrying appropriate identification. He also has a warm, non-threatening manner (as well as 15 years of experience in doing this sort of thing!).

One reason that I had always been unsuccessful in locating the interference source was that I had always waited for good weather (in New England, that means warm). During warm weather, she was turning the pad off.

The conclusion to the story is that the power company man convinced the lady that one day her noisy heating pad could catch fire and that she should discard it. He was also able to point out that when the pad was off, her TV reception improved.

For the non-professional, N1AXG suggests finding an old CAP radio because it will have an AM detector (FM detectors ignore noise), and fashioning a small hand-held yagi from a broom stick with #10 wire elements.

For those with a further interest in the outdoor splice protection I mentioned in the previous article, the manufacturer has finally printed an advertisement on this new product. Such protection will prevent loss due to water ingressing into a splice.

It is interesting to learn how CWY decided that they had a reliable splice protector. They simply filled the splice protector with a non-dairy creamer powder and dumped the coax into some water. A few days later, they removed the splice protector, with its splice, from the water, and the powder was still dry.

The tale may be made up strictly for sales purposes, but it sounds nice doesn't it?

Weak Signals

Through a small editing error, the citation in my previous article to a piece by Joe Reisert, W1JR, in which a nice preamp circuit appears, was wrong. Correctly, see Ham Radio, November, 1984, p. 101.

On the subject of preamps, friends hereabouts are touting the usefulness of a very inexpensive device, the NE41632B, made by NEC and selling for something in the two dollar (U.S.) neighborhood. One of them yields 9 dB gain, so a two stage preamp yields 18 dB without any noticeable intermod problems. Since a Beverage is typically 20 dB less efficient than a dipole on 160 (or 80), 18 dB gain results in good comparisons of signal-to-noise ratios with apples-to-apples signal levels.

For a small difference in performance at the upper end of HF usage (noise figure of 1.5-2 instead of 1 dB at 30 MHz), it is possible to substitute the commonly available 2SC2644, or a 2N5109 for the above mentioned NEC device. Of course, at 1.8 MHz, there would be no difference.

Thanks to Carl Huether, KM1H, for the above tip and discussion.

Conclusion

I'm grateful to all who've made suggestions on improving reception on 160. It is certainly a challenge. Remember, the better you hear, the less likely you will be to transmit while that rare one is coming back to me.

Fred Hopengarten, who wouldn't dream of building his own preamp, despite the above suggestions, is currently trying to figure out how to make his two element ColAtchCo vertical phased array for 80 meters work on 160--perhaps by making it think that it is just a short, fat single element vertical on 160.

WORKING AS VP2KBZ

BOB NASH, VE3KZ

This month I would like to introduce RADIOSPORTING readers to how some of us have had the opportunity to operate offshore and to share some of my first impressions of my temporary home in the new nation of St. Kitts-Nevis during the Fall of 1983 and Winter of 1984.

The story of VP2KBZ is really just a chapter in a series of operations in the Caribbean by members of the staff of Humber College in Toronto. Previous activity included VE3DUS/J87, VE3DFD/J7 and VP2MKM (VE3IKM) from St. Vincent, Dominica and Montserrat, respectively. VP2KBZ (VE3KZ) was followed by V2AZN in Antigua again operated by VE3DFD. The presence of hams in this project was in a sense coincidental, since most of the personnel involved were non-hams but perhaps less than coincidental due to the fact that Bert White, VE3DUS, was in charge of the project and knew how valuable secondary communications and morale maintenance can be for staff thousands of miles from home.

We were all part of a Mobile Technical Training operation which started on the island of St. Vincent. J8 and Humber College had a long history of co-operation through the private resources of Rotary International. Many students from that area had been accepted by Humber College and supported, in part, by Rotary, to stay in Canada for the duration of a two or three year training program in numerous specialties from business to chef training to marine mechanics to electronics technology. It all started with our co-operation in building a trade school on the island with personnel from the College. It continued through many phases, many continuing, such as the on-going program to help a considerable number of hearing-impaired children on St. Vincent and the Grenadines. At this time Humber College staff are providing a series of training programs in a virtual continuous stream to this 'twinned' College.

The Mobile program, however, was unique. Picture if you will a group of some seven heavy plywood crates typically 4 X 4 X 8 feet, packed with whatever was required to teach short, intensive courses in Refrigeration/Air Conditioning, Building Construction, Small Engines, Plumbing, Electrical Construction, Electronics and Electrical Appliances. Everything from paper to compressors, from resistors to oscilloscopes... even the crates were double clad plywood so it could be used as building material! Courses ran from two to six months with an instructor dedicated to each or occasionally to a pair of day and night courses. The instructors, in some cases, would bring down their families, carrying on with school by correspondence, and giving their children a unique experience in applied sociology, psychology, geography and history, to mention a few. The crates would be shipped from island to island with the appropriate ones put to use depending upon which courses had been requested by the host government. The original sponsorship of the St. Vincent project shared by Rotary and CIDA, the Canadian International Development Agency, had changed, due to the increased scope of the action, to a wholly CIDA financed operation with coordination through ACCC, the Association of Canadian Community Colleges, to increase the participation and availability of teaching talent at other than Humber College.

I had spent quite a few evenings acting as the liaison contact with Bob, VP2MKM, while he was spending his six month sojourn on Montserrat. During this time I gained a decent appreciation of the trials and tribulations in operating an instruction program as a guest in someone else's facility, living in a foreign country, living in the tropics, living as a visible minority and keeping the supply lines open over a 2500 mile international path. Although I had been warned that every one of the Caribbean countries is different, Bob was free with his advice, and in total, after many QSO's in the Spring of 1983, I felt confident enough to sign up for the next phase of the operation when the crates headed by tramp steamer north from Montserrat past neighboring Nevis to the island of St. Kitts, soon to become the site of the latest Independence ceremonies in the Caribbean. I was scheduled to start teaching the same courses as Bob had taught on VP2M and to start doing so two weeks before Independence Day! The scheduling looked chancy, and we headed south with the certain premonition that the only way to find out any more about what was going to happen, was to actually experience it!

This countryside in the West Indies sure looked different from any recent Canadian countryside - palm trees and no snow! Our first QTH on St. Kitts.

It was decided that the domestic arrangements would involve having the whole family down for a month centered on Christmas, going down with my wife Marlene, who would stay for four weeks to hopefully get me settled into some appropriate accommodation and during the rest of the time I would be either on my own or sharing accommodation with one of the two other instructors' families depending on how big the house was. Son Tom, VE3MFT, and daughters Barbara and Mary would be on their own for three weeks at home and down in the Caribbean for four weeks, both new experiences that contributed equally to the growing-up progress through the 'teen age crisis' years. As for me, it had been over 20 years since I had to fend for myself and as it turned out, that's the way it was going to be!

We arrived on Antigua August 20 after a direct flight from Toronto arranged by Dave, VE3NN, then VE3AZJ, of Air Canada and headed immediately via LIAT and a Canadian-built Twin Otter to Montserrat to spend the weekend with VP2MKM and also with VE3DUS who had arrived earlier for class graduation and the 'Goat-water' barbecue on the beach. Bert and I, being devout CWists, put the finishing touches on Bob's log before helping him down with his 20 m horizontal dipole. We received our final briefing from Bob then island hopped through V2A to VP2K via trusty Twin Otter to SKB Airport at Basseterre, the capital of St. Kitts. Stretched out below as we circled in was a verdant paradise, high mountain range and extinct volcano centered in deep greenery, surrounded by cultivated fields, the sugar cane comprising the main industry, a giant-chicken-leg of an island pointing thigh-to-the-NW and foot-to-the-SE with the multiple green broken only by the browns of the SE peninsula stretching in desert isolation away from the populous main part of the island.

After hours of pouring over maps before leaving Canada, I tried to relate what I was seeing with the mental map with limited success but those North-east beaches and that high land looked very promising from the air. I was sure I should be able to see VP2KC from up there but I scanned the green lattice with no luck. As we touched down, my thoughts were crowded with the events to come, the next six months representing my home country in the newest country on the globe and representing my adopted country on the airwaves of the world. Perhaps a brand-new prefix. The start-up of a sked with VE3MFT and the boys at Humber College.

Next time - locations and propagation - low and high.

THE ARRL CAC ACTIVITY

Murphy's Law certainly is alive and well. The surest way to make something change is to publish the status quo. Even as the February issue went to press the mail brought forth a new Contest Advisory Committee lineup on February 4. Randy, K5ZD, assumes the Chairmanship and Steve, KOCS becomes the new Midwest Division member. Apologies to K9KM for making him W9 for a day. There is no greater disservice than screwing up someone's call. Thanks to old friend, Tom, K1KI for pointing out the error.

I'm writing this column with the aid of a hurricane oil lamp, the electrical power and water having just been subdued by the latest outlash of the Canadian winter. We are expecting between one and one-half and two and one-half inches of rain by midnight. There's only one problem. The temperature is 5 degrees below freezing (F). My 40/80 vertical just collapsed in a heap with one-half inch of radial ice on it and there's still seven hours to go! It joins the 40 m dipole, the 40 m quad loop and the 80 m inverted vee, all of whom were on Mother Nature's hit list earlier in the winter. The yagis look like wounded seagulls as the ice builds up and the wind increases.

This article isn't meant to be a plug for Canadian tourism, however. The main purpose this month is to give a little publicity to the items now before the ARRL's CAC and provide a list of people with which to make contact to voice your opinions and get them heard by ARRL administration. I know I have a particularly difficult communications job within the Canadian Division, which after all, is spread around a bit geographically. Getting VY1 and VO opinion involves a few thousand miles of path. Just getting VE3 opinion involves an area the size of Randy's West Gulf Division, which includes Big T, Big D and a lot of other big things down that way. This present scheme of writing notes in the dark is definitely not the most efficient communications system but I hope it serves the present purpose.

This is a compendium of present CAC activity as combed principally from the latest from K5ZD and W1OD. Hope it stirs the CAC pot and drags out support from the membership.

- Field Day - simplify categories, emphasize QRP, natural power, advanced modes (AMTOR, packet, even RTTY)
- 160 Meter Window - new ideas? obsolete? general band plan for contesting
- Contest telephone Multipliers - no setups during contest!
- Repeater - use by single ops during contest
- Club Competition - how many categories? enforcement, meetings per year, role of multi-multi's
- Identification - who is this masked man? how to waste everyone's time in a contest
- Code of Ethics - do it or forget it!
- VY1 Separate Multiplier - VE8 and VY1 to be treated the same as VE1 provinces?

The Division people to contact to provide YOUR input are:

Atlantic	-	K3UA
Canadian	-	VE3KZ
Central	-	K9BG
Dakota	-	AK0T
Delta	-	AA4AK
Great Lakes	-	K8CC
Hudson	-	N2LT
Midwest	-	K0CS
New England	-	K1DG
Northwestern	-	AG7M
Pacific	-	WB6DSV
Roanoke	-	K3ZJ
Rocky Mountain	-	W0UA
Southeastern	-	K1ZX/4
Southwestern	-	N6VI
West Gulf	-	K5ZD

Last year's get together at Dayton was good fun. I hope the contesters will be there in numbers again in 1985. Bring your ideas down and hunt down the CAC members so they can represent you in your contest forum during the coming year. We can't vote for your ideas if we don't know what they are!

(VE3KZ)

MORE ON KENWOOD RADIOS

YURI BLANAROVICH, VE3BMV

In the next issue of RADIOSPORTING we will have an article on the installation of better filters in the TS-930S. We have received the Fox-Tango 455 kHz CW filter and we will run some tests on various combinations with bandpass curves.

Bob Heil, K9EID of Heil Sound came up with some useful accessories on the audio side - boom mike and headphones combination, microphone equalizer and power speaker. We hope to get some samples for evaluation. Looks like excellent complement for the DXer's and contester's station. Bob is also speaking at the DX forum of Dayton Hamvention and we hope that this will clear a lot of garbled signals on the bands.

One very important aspect of the TS-930S is that it does not change the frequency when you switch mode from USB to LSB to AM to CW. Most other radios change the frequency and you have to retune the VFO to "come back". With 930 you can simply tune the AM station for zero beat on USB and then switch to LSB and listen to the other sideband. This feature is very useful and gives you true and convenient tuning of various stations on different modes. The dial always displays the true frequency of the signal. In the CW mode you can tweak that to be precise zero beat frequency with the PITCH and audio filter peaked for your preferred beat.

Recently I had a very interesting experience. When I was trying to cure hum on ICOM 751 transceiver and connected antenna terminals of TS-930S and ICOM-751 together with the coax (by mistake, I thought I was on the antenna). Then I keyed the ICOM with full power. Signal was too strong on the Kenwood so I turned the attenuator on. Then I continued keying the ICOM with full 100 W output and listening to the tone on Kenwood until the smoke was coming out of Kenwood. Then I realized that I used the poor '930 as a dummy, I almost fainted. I pictured fried front end all the way to the filters. To my pleasant surprise I have found that only thing that went, were two resistors in the attenuator circuit. The front end transistors and attenuator relays were fine. What a relief! I bowed three times in the eastern direction. Don't try it, but it also indicates that this toughie can take some punishment when used with external receiving antennas.

Those interested in the latest gossip about Kenwood radio might like to tune into the Kenwood User's Net every Sunday at 2000Z on 14.317 +/- QRM.

"DX-CELLENCE!" TS-940S

This older brother of TS-930 has finally hit the pages of magazine advertising and it should be available very soon at the dealers. It will be shown at Dayton Hamvention and judging by the advertising, it looks good. It is basically an improved version of 930 with dynamic range of 102 dB (100 dB for 930), 3rd order intercept point is +14, noise floor of 138 dBM and sensitivity .2 uV 10 dB SN+IN. The physical dimensions are 40.9 cm W, 15.4 cm H, 42 cm D (with projections). Weight 44 lbs with antenna tuner.

To list some of the features they are all in the positive direction: 100% duty cycle transmitter implements very efficient cooling system allowing to operate continuous transmission at full power output for periods exceeding one hour. (Something for tuner-upers.) This also means of 140 W on AM and FM (if you need it.)

The meter face plate is now dark with light lettering, so it won't "blind" you when operating with dim lights, and more eye pleasing. The familiar dual VFO system is used and 40 memory channels (4 groups of 10 channels) are available and included is a programmable memory or frequency scan. Lithium battery back-up keeps things alive with power off.

Keyboard frequency selection allows to punch the frequency from the keyboard which also functions as band selector keyboard. Z80 type microprocessor will interface with RS232. Optional computer interface to be announced later.

The MODE and FUNCTION pushbuttons are conveniently located on both sides of the VFO knob. Modes include also FM and FSK in addition to USB, LSB, CW and AM. If the mode switch is pressed, the first letter of mode is sent in morse code. Optional voice synthesizer can be activated with a pushbutton. Switching VFOs between A and B is now done with a pushbutton instead of rotary switch. The second VFO frequency can be displayed on the LCD graphic display.

The major addition is the LCD display, which is used to display VBT and SSB slope tuning, frequency, memory channels and frequency, time (yes, there is a clock and a timer!) and antenna tuner status. The LCD is green in color and right next to the main display.

Finally the XIT made it too, there is a pushbutton for it and I am sure it will be used. Little red XIT comes on when the XIT is activated. The digital display comes now standard with display of tens of Hertz.

The controls have been moved around a bit, but they are well laid out and conveniently located.

The antenna tuner now tunes the full range from 160 to 10 meters. Smaller printed circuit boards are used instead of the one large main board. (More room for filters?) Pan display output is available.

A number of accessories is available, the old familiar filters, speaker, SO-1 oscillator, various microphones, station monitor, pan display, phone patch, power meters and RS232 interface soon.

We will try to get the TS-940S as soon as possible and will have an in-depth review on this new machine. Those going to Dayton will have the chance to touch it and twist the dial. The list price is $1,999.00 with antenna tuner and 1,799.00 without. It sounds like more bang for a buck. We are bracing our classified ads column for influx of ads selling '930s.

MORE MODIFICATIONS FOR THE TS-930S

We are including some more modifications devised and collected by Tom Hammond, NOSS which are very nicely done and computerized, so we present them in their original format. Especially the one on balancing the fan blades should be applicable to everyone. In the coming issues we will elaborate on some modifications by the International Radio (ICOM and Kenwood Users Club). (VE3BMV)

TS930MOD/A By: Tom Hammond - N0SS Last Revised: 13 April 1983

"TRICK BOX" AND HI/LOW VOLTAGE T/R RELAY KEYING FOR THE TS-930S

The TS-930S provides for several necessary input/output connections by way of the REMOTE (a 7-pin DIN jack) on the rear panel of the '930. DIN plugs have always caused frustration for me. They're rather small, almost impossible to disassemble (once properly assembled), and don't readily lend themselves to Kenwood's supposedly intended purpose - providing EASY access to auxiliary input/output connections.

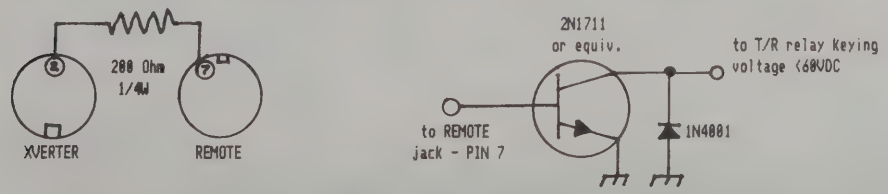
The functions provided by the various pins on the TS-930S REMOTE jack are:

PIN 1) Aux. speaker output, for taping, etc.
PIN 2) Common connector ground for all REMOTE jack connections.
PIN 3) PTT line, for connecting a foot switch or an external PTT line.
PIN 4) Normally open collector from Q22, for keying a T/R relay in an external amplifier. R95 (on the SIGNAL board) limits collector current and requires that the relay keying voltage (supplied by the AMP.) be generally above +90VDC. R95 can be changed to 2.2 Ohms to permit keying low voltage relays, however, if this mod is made you may risk drawing too much current thru the transistor if high voltage keying is again attempted without changing back to the original value of R95 (100 Ohms). More about this later.
PIN 5) Uncommitted pin
PIN 6) ALC Input from Ext. Amplifier
PIN 7) Uncommitted pin

I didn't relish the thought of attempting to bring multiple two-wire pairs out through the plastic cover of the DIN plug and then re-route them (some "hot") to my other accessories. I decided to bring ALL 7 pin outputs out of the DIN plug through a small, flexible, 7-wire cable (about 15" long), to a small plastic project box (Radio Shack 270-220), with RCA jacks to match each available output (6 jacks). This method allows easy connection to all output pins of the DIN plug without having to fight trying to force a lot of heavy wires through the small opening in the plug cover, provides "standard" connectors AND simple disconnect without fear of "hot" wires hanging everywhere.

To the distribution box I added a separate, solid state, low voltage T/R relay keying so that I didn't have to change the limiting resistor associated with the original high voltage T/R keying circuit. With this mod, BOTH high AND low voltage T/R keying options are available at the "trick box".

The low volatge T/R keying circuit is just an open collector NPN transistor (Ic=1A, Hfe=200) such as the 2N1711, Radio Shack 276-2017 or 276-2018 (better still, use the 276-2068, it's a darlington pair with an Hfe of 2000+), with a diode (1N4000 series) from the collector to ground to protect against reversing the connection to the relay keying voltage. The driving voltage for this transistor was found on PIN 2 of the XVERTER jack and fed to unused REMOTE jack pin 7 thru a 200 Ohm 1/4W resistor. The 200 Ohm resistor limits the supply current to 50 mA. in case something happens to short out. The transistor should require no heat sinking and many NPN substitutes may be found as long as the Ic and Hfe requirements are met. The keying circuit is shown below:



I have found the "trick box" scheme to be much easier to work with than the idea of making ALL connections directly at the REMOTE plug. Just remember to connect the GROUND connection (PIN 2) to ALL ground lugs on your RCA jacks. Since no heavy current is being carried by any of the conductors, any light (#20), insulated, wire will serve will as the cable from the DIN plug to the "trick box". The more flexible the wire is, the more abuse it will withstand. So far, I have not found it necessary to shield any of the individual wires in the cable, however, if you have access to some 6-cond. shielded wire, it wouldn't hurt to use it just to be safe.

So far, I've only used five of the six available RCA jacks. Someday I'll find yet another output or input I want and it'll be easy to connect to the '930 thru the unused "trick box" jack and as yet unused REMOTE jack PIN 5.

NOTE: IF YOUR TS-930S IS ONE OF THE NEWER MODELS (WITH THE AMP. KEYING RELAY ALEADY BUILT-IN), PIN 7 ON THE REMOTE JACK WILL ALREADY BE IN USE (BY THE OUTPUT FROM THE RELAY, I THINK). IN THIS CASE, YOU MAY DO ONE OF TWO THINGS:

1) Connect the switched 12VDC (from pin 2 of the XVERTER jack) to uncommitted REMOTE jack pin 5, or
2) Remove the relay output wire going to REMOTE jack pin 7, tape the wire to prevent shorting, and reconnect the switched 12 VDC at that pin.

OPTION 1 ABOVE WOULD BE THE RECOMMENDED COURSE TO FOLLOW UNLESS YOU HAVE PLANS THAT REQUIRE TWO UNCOMMITTED PINS AT THE REMOTE JACK.

TS930MOD/B By: Tom Hammond - N0SS Last Revised: 20 Jan. 1985

BALANCING THE TS-930S COOLING FANS

It's no secret that the cooling fans on the '930 run a lot...in fact, the power supply heatsink cooling fan probably runs 30-40% of the time the rig's on. This really isn't a bad idea..it keeps things nice and cool. HOWEVER, the plastic fan blades that the '930s use aren't necessarily the most well-balanced devices I've ever come across!!! In fact, I had to balance the RF deck heatsink fan within the first week of operation of the rig. Whenever this fan would come on, it would really kick up a rattle within the rig.

To test the balance of and ultimately rebalance the fans, proceed as follows:

1) Remove the fan AND its bracket from the back of the '930 and MARK the +/- terminals (- is shield) on the back of the motor housing (next to the solder terminals) BEFORE desoldering the power wires.

2) Remove the fan and motor from its protective plastic enclosure.

3) Tack-solder some temporary power leads to the fan and, while holding the fan motor body between two fingers, apply power (9-12VDC) and "feel" the amount of imbalance caused by the blades. The fan should spin almost without any vibration at all!!! Any vibration will eventually wear a flat on the fan motor bearings and cause the fan motor shaft to become loose and noisy.

4) If you feel that balancing is necessary, use a SMALL (1/4" dia.) "blob" of clay, COAXSEAL, or some other sticky substance and stick the "blob" to the INSIDE of the periphery of the fan hub. Re-start the fan and again "feel" the amount of imbalance.

5) Move the balancing "blob" around the periphery of the fan hub until you find a location which gives the best balance. Then try varying the size of the "blob" used to achieve smooth running.

6) When you find the right combination of weight AND location, replace the "blob" with a small, solid weight (I used a flattened 3/8 inch piece of solder), glued in with CONTACT CEMENT. The contact cement is needed because the fan blade is made of polyethylene which won't adhere to many adhesives (including the super glues). Contact cement adheres to polyethylene fairly well. Remember to try to make the balancing weight the same weight as that of the "blob".

7) Re-apply power and verify that you have used the proper amount of counterweighting.

TS930MOD/F By: Tom Hammond - N0SS Last Revised: 26 November 1983

EASY WAY TO CONNECT TO UNTERMINATED PCB PINS ON THE TS-930S.

NOTE: This mods is particularly designed for use in mods such as adding the additional 8 memories, scan memories, and adding the 10 Hz. display digit, all of which ask you to connect a wire to an unterminated PC board pin.

1) Strip about 3/8" of insulation from one end of a piece of #24 stranded hook-up wire (make sure the wire is long enough to reach between the two points you wish to connect!!!). I have found that the wire used in "ribbon cable" is perfect for this use, small and very flexible.

2) Remove the PCB plug from its jack by alternately lifting each side slightly until it comes free.

3) Twist the wire strands of the wire you've stripped and insert the stripped end into the plug until it extends out the BOTTOM of the plug about 3/16".

4) BEND the protruding wire back against the body of the plug so that it forms a small "J" and locks itself onto the plug body (at least so it won't fall out).

5) Reinstall the plug on the jack. The friction of the wire against the pin will effect a good mechanical and electrical connection and will not require that any soldering be done on the pin.

6) Terminate the free end as required to complete the modification.

8) Replace the TS-930 power leads (be sure to connect the shield to the NEGATIVE terminal on the fan!!)

9) Re-install the fan and its housing and enjoy a QUIET fan.

Using the above method I've been able to balance both of my '930 fans in about 10-15 minutes each. I hadn't planned on having to balance the power supply fan unless it required it. Unfortunately, this fan began really making a noise one night. After removing the fan, I found that if I rotated the fan motor 180 degrees on its axis the noise would go away BUT return if the fan was again returned to its original attitude. This is what gave me the theory that a flat was being worn of the motor bearings. In any event, balancing the blade WILL help to eliminate mechanical noise and WILL help to ensure that you won't have to replace the fan motor until its time really has come.

TS930MOD/C By: Tom Hammond - N0SS Last Revised: 08 April 1983

ALTERNATE METHOD OF SWITCHING TS-930S DISPLAY, MEMORY AND SCAN MODS

*** NOTE: This mod assumes that you've already made one or more of the above TS-930 mods which have been *** published in the UIRC Newsletter and that you now are wondering just where to find the switch to switch *** them in and out. ***

I didn't want to modify the already established wiring of the '930 to allow for ON/OFF switching of the various mods available for adding 10 Hz. readout, 8 additional memories, and scanning the memories, so I proceeded as follows:

1) Go to Radio Shack and buy their 4PST mini-DIP (PC mount) switch (RS 275-1304) for $1.49.

2) Make a small PC board base for the switch, cutting 8 separate lands in the base with a sharp knife so that the switch can be soldered to the base and so that each switch pin can have its own mounting land. The base is just about the same length and width as the body of the switch.

3) Connect the wires from the 10 Hz., the 8 extra memories, and the scan mods to three of the lands on one side of the PC board base. HINT: plan for the FOIL SIDE of the PC board to be FACING the switch so solder the wires directly to the foil, DO NOT bring them thru holes in the board first.

4) Next, solder a common ground lead to the matching PC board lands on the other side of the base.

5) Cut and attach small piece of double-stick foam tape to fit the bottom (non-foil) side of the PC board base.

6) Mount the switch assembly in any convenieny location where it will be available but not openly visible. I mounted my switch on the VOX/CAL. switch panel inside the little trap door on top of the '930, centered between the three VOX controls and the CAL. switch.

TS930MOD/D By: W6EE, written up by Tom Hammond - N0SS Last Revised: 05 May 1983

*** THIS IS A W6EE MOD AND CREDIT SHOULD GO TO HIM FOR ITS USE ***

ADDING D.LOCK CONTROL FROM THE TF-SET BUTTON

The D.LOCK function on the TS-930S is really nice, BUT it does require that you UNLOCK it if you have to shift or change frequencies for some reason or other...such as when you're chasing a DX station who's working split and you want to D.LOCK HIS freq. but shift YOUR freq. This mod will allow you to do just that. In fact, it'll also allow you to D.LOCK a simplex freq. and use the TF-SET button to shift that freq. and return to D.LOCK by merely releasing pressure on the TF-SET button.

NOTE: This mod involves the D.LOCK and the TF-SET switches. Each of these switches has six pins. The outermost two pins (pins 1 and 6) are the common pins of a DPDT switch. Pin numbers 2 and 5 (counting in from each side) are the NORMALLY OPEN contacts and pin numbers 3 and 4 are the NORMALLY CLOSED contacts. The TF-SET switch has a set of unused contacts. This is the set you'll use. If you're still not sure about which pin is which, check it with a VOM.

While the mod may get a bit hairy to describe without a Service Manual (which you should not be without), the actual mod is really quite simple:

1) Remove one of the grey wires (whichever is more convenient) attached to the back of the D.LOCK switch.

2) Add about 4 inches of [illegible] to lengthen the wire you just removed and reattach it to the unused COMMON pin of the TF-SET switch.

3) With another piece of wire, connect the NORMALLY CLOSED contact pin of the TF-SET switch back to the pin of the D.LOCK switch from which you previously removed the grey wire.

That's all there is to it. Of course, if you have the AT-930 you'll have to remove it. That's not difficult either and you can reverse the installation instructions for the AT-930 to aid you in the removal.

CANADIAN ASSAULT IN WPX SSB CONTEST

YURI BLANAROVICH, CZ3BMV

It looks like a bunch of Canadians with weird prefixes made a serious threat to the low band world records this year. After making it No. 2 and 3 last year, it looks like they have learned a lesson and stepped up the effort to improve the scores. It is not often that we get lucky to get a special prefix for the WPX contest. This can only happen when there is some kind of anniversary colliding with the WPX contest. We always try to find one, but do not always succeed. This year we actually had a choice of using the CZ3 or CG/VF (for VO), which is unheard of. Does it help? Well it doesn't hurt for sure. Sometimes it is a tongue twister (like that X-ray November) but it definitely helps to pick up those uninformed who think that they worked Mexico or Spratley. When they find out that it was only Canada, they almost want the contact back. But it's to late; we've got them in the log and sometimes even on tape.

It is very unfortunate that our Department of Communications does not consider WPX contest and Canadian representation in the international competition a good enough reason to issue special prefixes for the contest. (All we want is to use it for 48 hours, then they can have it back!) This is probably the most beneficial use of the special prefix. Those that are chasing the prefixes all show up in this contest and it helps Canucks to give a hard time those equatorians from the Caribbean. Maybe the new government will recognize the "prefixers" and help us in this direction. (Next time elections come up, besides asking the candidate where he stands on the abortion and capital punishment issues, add the special prefix issue!)

Band conditions didn't look too bad, which was a good sign. Traditionally the WPX contest is plagued with lousy propagation and Aurora which is fascinating to watch but absolutely disgusting to listen to on the radio. All you can hear is the Aurora and no stations. It makes you run outside to see if the antenna is still there or you start taking the radio apart to see what died in it. So it almost felt like "what's wrong?", how come we have no disturbance?

Befor the contest I was trying to switch my antenna system from 40 m to 80 for this year. But because of the workload and fun with RADIOSPORTING there wasn't even enough time left to fire the radios up before the contest. I barely had the time to put the Inverted Vee at 50 foot level on the tower. Being very rusty from not having a chance to operate since CQ WW CW contest, it felt like walking into the 747s cabin. I figured I had better work some more 6 pointers - Europeans. So there I go and work them through the Radio Albania, Moscow and of course the Woodpecker. That Son of @#$%% must have found that crazy hams had a contest and he parked right in the middle of the band. It followed me where I went. So a few times I called him (you don't want to know what!), but he wouldn't give me a number! They must be QRMing their own receivers! The band was quite good, meaning a lot of noise. Wide, compressed and decomposed signals from some Europeans at times made you wonder who you really worked. On the top of that my high voltage line noise was coming in with bursts of noise 10 over S9 from NE, where all the Europeans are.

There I was struggling to work those six-pointers and after about two hours I tune for multipliers and hear my friend from Newfoundland - VF1CV ahead of me by 200 contacts. That froze me. Did he start numbering with 200? He must have been working Americans split and bang-bang, while I was trying to fight the Woodpecker! It's only the beginning, maybe I can catch up. (I even put my sneakers on.) There I go trying to make up for it: listening 208, 228, 234 or whatever the hole is before another station picks the same spot. You know when it happens because the guy will thank you for the report before you give him one. So you have to find another window in between all those Radio Moscow pileups. A few times you try to zero beat them, but you are not sure how good other people's filters are. If you have a good filter you can do it. If your filter is like a barn door, than you hear Vlad telling you about free education and building a better tomorrow. So you move off a kHz or kc and start again until another Italian finds your frequency and starts listening to your QSOs and stealing them. So I torture the dial between listening up, here and everywhere. The noise level is high, the S-meter does not go below S9, I keep the attenuator on to save my ears.

I gradually crank up the gain to hear the one with decomposed audio and after a while I become deaf. I can find that point when I pick up the telephone and can't hear the dial tone.

Then you occasionally get a visitor that comes on "your" frequency and pretends he does not have a receiver. If he is a juicy one like ZB2 you can kiss "your" frequency goodbye. People want to work the rare one and not the lousy Canuck. So you move on hoping to find another window in the Albanian jungle and Woodpecker's tack-tacks.

From time to time you tune for other CQ machines to see if you can find the new one. You also see that '1CV is still ahead, sometimes more, sometimes less, but still there. So I run all I can, trying to remember all the tricks, including all the languages I can speak, telling them about the special QSL cards I promise to send, and asking if anybody can hear me. (3 el. at 110 feet and kW might not be heard in Chicago!)

When South America is booming in, you get on and pretend you are not in the contest. If they find out that you are they worry, because there is a rule down there that you must send in the log if you work contest stations. They "no speak english" and don't know what the devil contest is all about and to what PO Box to send the log. CQ doesn't have a PO Box and to spell North Broadway and Hicksville would take up half of the contest. So you say QSL via the bureau and no abla espanol! Quearzeta frequencia hoping to attract another unsuspected espanol.

I am falling asleep; it's 3 AM; not much cooking from the Pacific; JAs are not rising with the sun. Looking for them on the crooked path SW, there's not a trace. A few times I closed my eyes (fortunately I didn't wake up at Sunday noon!), a few times called as CG, even as CI3BMV. The brain is getting scrambled. I try cold water, switching

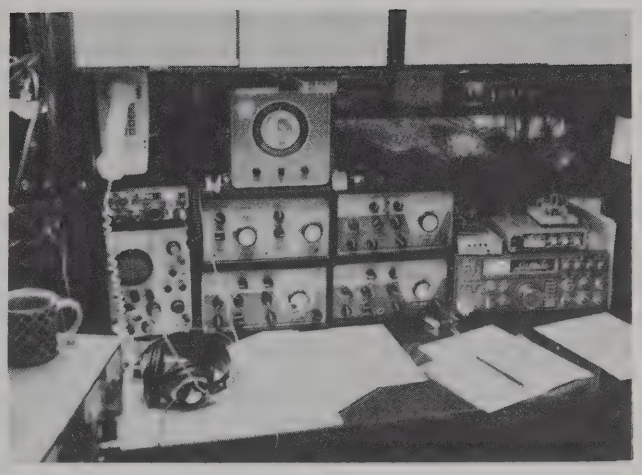
the chair, standing up for a while. Looking in last year's log, the JA's were supposed to be here already at 0900Z, I worked about 30 of them last year. Finally at 1003 there is JA7YIB and hope to run them, but forget it, there are just a few and they call CQ. There is 5W1EJ with # 1234 and I hope he is all band. Last year T32AF beat us. A few more VKs, VK6s, but no JA pile-up. They must all be looking at the new TS-940S at some convention.

As the sun comes up and America wakes up, all those owners of frequencies come and continue with their last week's rag-chew and wouldn't give me a call. Just a remark that there is that @#$& contest on again. So they crank up their splatters and continue even after their partner has gone to church and is not listening any more. A few merciful souls say "I am not in the contest, but I give you 59 in North Something." I thank him for the precious points and wish he had a big family with five more hams in it. That would be 20 more points, maybe even a multiplier. You wonder where all those guys are with those 2x1 prefixes, or why did they get them if they don't go in the prefix contest. What a waste!

Now rest time comes; I have to be careful. One year I deprived myself of one hour of operating time by simply miscalculating my off hours. That could mean 100 contacts and I need them. Finally it's bed time when the family is getting up.

54 ft boom on the 3 el. 40 m Yagi beam is loaded with ice and bending in 60 mph wind. One tip of the director is already missing. Below, fiberglass spreader for the Inv. Vee is also flexing its muscles.

When I woke up on Sunday and looked out of the window - nothing. It was frozen. Hauling wind and freezing rain (falling horizontally from the east) encapsulated the house and everything around in ice. It looks like a good half to one inch. The elements are bent in a semicircle, the Inverted Vee is sagging and the wire is stretched. Checking the SWR shows that both antennas resonate well below the band. This stuff was not supposed to come here, it should have gone VO1! Then the crash, one leg of



This was the hardware used by CZ3BMV. TS930S was used as a main rig, with Drake B twins and R4C as a backup. Datong audio filter helps to fight QRM and heterodynes, while 8877 monoband amplifier supplies the power and keeps the herbal tea warm.

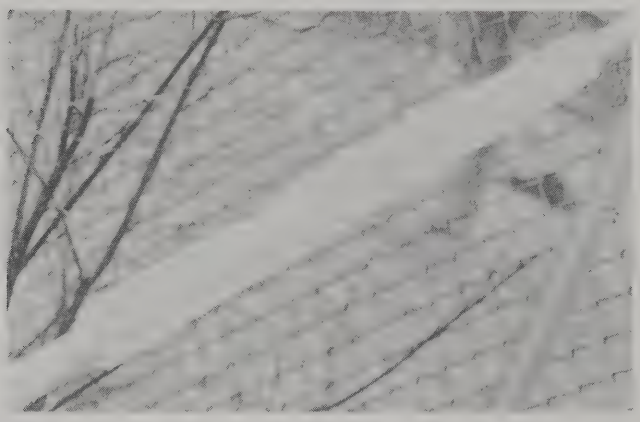
the Inverted Vee gives, then the whole thing, with the spreader. Then the tips of the director element on the Yagi go and land in the neighbor's back yard. Back to two elements. Trying to keep the antenna oriented only East or West so at least the boom survives and hopefully the driven element. When I beam East, W9s call me, so I turn the wounded beast West and W1 pileup starts. Is it on purpose, or has the antenna flipped? Just praying for at least the driven element to survive till the end.

Then we go again. Around 3 PM I hear '1CV running Europeans, I can hear some of them, but they don't hear me. Newfoundland is half way to Europe from here and even if I had 8 elements, that wouldn't help much. So I turn to our South of the Border friends and try to make up in speed, but forget it. Still the same gap. Here and there you get the weird one to call, like 3XOHAB, thanking for the new one. Pile-up of D44s - all of them: D44BS and BC, TR8IG. Then on Sunday I stumble on the Clipperton boat and add FBOXX, XF4ZU and TI2CF, all the "boat people" on the way to have fun to get yelled at on Clipperton. Old friends are trying to help when they hear you struggling and begging for contacts. There is W1WY, N8BJQ and others that you haven't heard since the last one.

Max, VF1CV is still running Europeans. I try and try and nothing, so back we go to stateside hoping to gain some more QSOs and hopefully faster to make up for the six pointers he is working. Lot of 001s and boy am I grateful for them. I wish the whole clubs would come down and say hello to Crazy Zombie Three Brandy Martini Vodka. The last two hours is - run all you can. No luck with Europeans, they are either not there or too much QRM. So when the gong goes off and the smoke clears and I look in the log, the final number is 1428 and who knows how many multipliers (stopped duping on Sunday morning), it looks a little bit better than the last year, but probably so does Max, he should. Not knowing who else had what, I'm happy to turn this noisy screeching mess off and go upstairs to say hello to my family and have a look at what is left of the hardware on the tower. The puzzle remains, who did it? Max or FM5CD or me, or some unnoticed African (OH1MA/CT3), or...? At this point who

cares, we will find out in ten months. The world record was maybe beaten and with a bit of luck might come to Canada, either Newfoundland or Ontario. The main thing is we had "fun" and falling elements didn't kill anybody. (Smart people don't parade under the antenna that is bending like a prezel in freezing rain!)

For those who always wonder what antenna is better I have some observations: Thursday night I put up about 500 foot Beverage at about 8 ft off the ground. The rest of the variety were 18AVT vertical sitting on the junction of three chain link fences, Inverted Vee at 50 feet, rotatable with tower and a 3 el. 40 m Yagi on 54 foot boom (stretched TELREX) at 110 feet. I wanted to see if that Beverage was also good on "high" frequencies like 40 m. (Scientists claim it to be excellent up to 22 MHz!) It stank! At best it was about 10 dB worse than Inverted Vee (very quiet though, no signals, Hi). The vertical (it's in bad shape, corroded) was never better than Inverted Vee. While the beam was beating this mess by at least 20 dB. All tests were done on Europeans. Of course beaming stateside during the day, the Inverted Vee was beating the beam by about 20 dB. It was mounted 90 degrees to the beam so it gave me coverage of the "nulls" of the other antenna with a flick of the switch.



After the heavy rain and temperature of +2 deg. C, this broken piece of element had about half an inch of radial ice on it the next morning.

Other friends and Ontario Contest Club raiders were busy on 80 and 160 meters. Steve, using his new two-letter call CZ3XO, ex VE3CYX (not VE3CVX nor VE3CDX!) was whipping his four phased verticals out of Niagara Peninsula to 930 contacts and about 1.3 Million points, beating last year's world record and VE3IY's N. American record. Steve was sick with a fever, almost losing his voice, but happy with the ending. Also KQ2M beat the world record with 1.27 M points.

On 160 meters there was a fierce battle going on between another two Canadians - CG3MFA and CZ3NNR. John, CG3MFA, old 160 m tiger won the duel with 522 QSOs and 162 prefixes over 3NNR with about 500 and 159. Both breaking the last year's world record scores and hopefully bringing the record back to Canada. VE3CDX made a North American record last year. Looks like CG prefix (the only serious user?) and experience, even while operating from residential area helped John to corner the record with 320K points.

Contesters learn quickly the difference between beating the record or score and making or setting the record. There could be more stations beating the record, but only one that can set the record. Quite often it's the one you haven't even noticed in the contest.

It's hard to say yet who is the king of the hill. We have to wait for the results. The first unofficial news appears with high claimed scores, but the final verdict appears in about ten months. By then we forget about the contest, but it's just in time before the next one to get all excited again and fired up for the next run. Hopefully we have learned from our past mistakes, made some changes in the hardware and are better prepared to compete better next time.

Now comes the tedious duping and figuring out of logs and cleaning out the mess. Also explaining to the neighbors what was all that Donald Duck stuff on their video recorders over the weekend and promise that it won't happen again. (Till next time. Hi.)

Wanna buy a round ice cube? They were falling from the sky during the WPX SSB. If only they would have left the elements alone!

Hopefully, I'll have time to take down the 40 m wreck and put up those loops for 80 and try my luck on 80 meters, where it is a bit cleaner but louder. So if you hear something 3BMV or any other contester begging for contacts during the contest, have mercy, give him a point. He is running for his country and trying to get some honors for it. Say hello and cheer him up. That's all he needs. When this 48 hour marathon is over, you will not hear him till the next one. The band is all yours. He will be working on a bigger and better antenna or trying to make peace with the neighbors. Contrary to popular belief there isn't a contest on every weekend, and he operates only five or six biggies a year anyway. CU in the contest pileup, hopefully from the spot you need as a new one! It's so nice to hear old friends again. (VE3BMV)

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*
* COMING UP:
*
* SUPER FILTERS FOR TS-930S
*
* W2PV 4 EL. YAGI DESIGN
*
* WB4ZNH IN EQUATORIAL GUINEA
*
* VE3BMV RAZOR BEAMS
*
* BUILD 8877 MONOBAND AMPLIFIER
* and more
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EQUALIZE THAT MICROPHONE!

BOB HEIL, K9EID

Back in the AM days, it seemed as if everyone was conscious of their audio quality. Many of those signals you would tune across, had better audio than the local broadcast stations. Good solid lows, crisp sparkling highs and no distortion, just good clean understandable audio.

What ever happen to those operators? Most would hasten to answer that SSB came into being and destroyed that great ability to have super audio. Yes, SSB did restrict the bandwidth from around 6 kHz down to 3 kHz, but as time progressed it seemed as if this bandwidth just continued to get smaller and smaller.

The majority of this movement away from super audio is due to improper equalization of the microphone line and the transmitter audio input parameters.

TWO YEAR STUDY

A two year study of the 160, 75, 40 and 20 meter bands has just been completed using very high quality audio analyzing equipment. The personnel performing this important study were not amateur radio operators, but professional sound reinforcement technicians and recording studio engineers. Their studies are very interesting if not shocking. Almost 70% of the SSB signals on the air today have very little, if any audio response above 1800 Hz! Most of these have a huge peak of +10 to +12 dB at 500 Hz and lower that ends up giving an audio response which looks like a ride at Disneyland, instead of nice smooth response with a slight rise in the top end for that added punch and clarity so vital to cutting through the pileups.

The first move of an operator that becomes aware of this problem is to try a compressor, or clipper, trying to "clear up" these gross problems of improper equalization. In the majority of cases, these types of electronic devices aggravate the problem as their operators don't fully understand their operation, causing low level microphone circuits to be overdriven into horrible clipping thereby causing massive distortion. The microphone inputs of most transmitters are set up to accept maximum 40 to 50 milivolts. Most of these compressors or processors (if you wish), are capable of producing well over 2 volts! In addition, they do very little to that frequency response curve and simply add distortion as the preamp is overloaded.

EQUALIZATION

It is apparent from all the studies, that equalization is the answer. One can use practically any microphone and equalize it to sound perfectly natural on any transmitter. With active equalization, you are able to adjust the amount of high and low frequency response as needed for a given microphone/transmitter/voice parameter.

Recording studios and broadcast transmitters, not to mention telephone lines, PA systems, etc., have used some form of equalization to flatten out the response curve and equalize it so that you hear the voice as a natural sound, not filled with extra frequencies and harmonic distortions that have been added by improper electronic apparatus.

Bell Laboratories have been studying the phenomenon of the human hearing for years. It is a continuous process with this great laboratory to help us understand what we hear and why we hear it. Without any type of equalization in our microphone lines, the transmitter merely sends the audio responses that the microphone and speech audio preamp for the transmitter add to the situation. A Bell concludes, our hearing is very sensitive in the mid range and needs some help in the upper regions, while very deficient in the lower extremes. When trying to copy the majority of signals, they do not have enough mid range and high responses to them. Most exhibit entirely too much low end and therefore are impossible to pull from the noise and interference of the adjacent signals.

The EQ 300 Microphone Equalizer from Heil Ltd. is the first product introduced to the amateur fraternity that can be used to do this very thing. The device has two active audio filters; the low at 490 Hz and the high filter at 2400 Hz. Both of these filters are capable of a 20 dB boost and 20 dB cut at those two frequencies, so that equalization of a microphone becomes very easy by simply plugging the microphone into the equalizer and connecting the output of the equalizer into a transmitter microphone input. Listening on a second receiver (using headset) while transmitting will allow the operator to equalize the microphone response easily.

PROPER MICROPHONE TECHNIQUE

It is very important to use proper microphone technique to avoid extraneous background noises. When we tune across some signals we notice that the fan in his amplifier is louder than his voice. The problem is that he is usually speaking a foot from the microphone and cranks the microphone gain, un-equalized processor, etc., make the background noise louder than his voice.

Microphones for communications were designed and meant to be talked into close-up. It is not proper to sit back away from a microphone and expect to have that commanding signal on the band. The important midrange frequencies are lost, the highs are diminished and what gets left is many of the lows and much of the room resonance that overrides just about any audio present.

To correct this and insure that your signal has that terrific midrange punch, free from the many extraneous background noises, run the microphone gain as low as possible to achieve good ALC action and speak no more than 1 to 2 inches from your microphone. It is the accepted practice in professional communications and it is the only way to achieve good solid audio. This does nothing for the equalization, but does help the signal to noise ratio of the audio system.

Meters and inexpensive scopes used in amateur equipment only show level. They do not reflect any information about the frequency response or shaping of the audio but simply level. It has been the misconception taught in handbooks for years that the higher the level out, the bigger the signal. This is the number one audio problem on the bands today. Bigger and bigger amplifiers hung on the end of exciters will indeed produce more RF, but with the current "matching" microphones (which usually

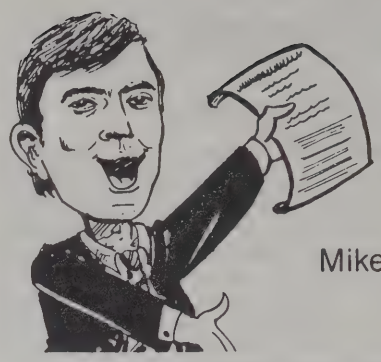
mean the same color microphone as the transceiver) being supplied by the manufacturers. The bandwidth of that "big" signal most of the time is only 600 to 800 Hz wide! During the early touring days of the Heil crews, we studied and proved out the papers written by two Bell lab engineers, Mr. Fletcher and Mr. Munsen. Back in the 1930s they discovered that the human ear was extremely deficient in the 1500 through 500 Hz range. This is exactly where the articulate syllables occur and the brain must hear to determine if one said a "P" or a "B" or if it was and "F" or "S". This articulation is lost in most SSB transmissions because of the mushy, boomy narrow banded low frequency audio that transceivers of the 1980s produce.

GOOD AUDIO vs. RF POWER TEST

To finalize several years of research by the Heil engineers, an interesting experiment was performed at K9EID. Two TA33 tribander antennas were mounted on two separate towers, each 60' high and separated by 50'. One of these was fed with an SB220 2 kW amplifier and TS820S exciter. The second antenna was fed with a barefoot TS-120S. The 820S was driven with a new stock Kenwood MC-50 "matching" microphone. The 120S used the same microphone, but with one of the new Heil equalizers in the line. High quality Hewlett-Packard audio analyzers were brought on the scene and equalization was adjusted to give the TS120 a perfect audio curve from 350 through 1800 Hz, with an 8 dB rise centered at 2200 Hz. (Interesting to note, the "stock" Kenwood station was measured to be 860 Hz wide with absolutely no information above 1550 Hz detected.) Both of these stations were operated at exactly the same time calling the same station. In a run of 4 DX stations, the 100W highly equalized station was answered first. On the last run, the DX station was asked why he answered this smaller powered station instead of the 2 kW powerhouse. The answer was simply "I could understand what you said better than any other signal on the frequency!" Here we proved that it is not just signal level, but making certain that all of your power is equally applied to the entire audio bandwidth your exciter filters will allow.

(K9EID)

The Heil EQ 300 Equalizer featuring state of the art peaking and shelving filter networks using quad Bi-FET op amps, less than .09% distortion and broad range impedance match. Will work with any radio, has adjustable output up to 2 Volts and LO and HI frequency range equalization. It can be operated with internal 9 V battery or AC adapter.



TECH NEWS

Mike Spenuk, VE3JTQ

IS OUR HOBBY DANGEROUS TO US?

The jury is still out on this question. There is still no substantial evidence that verifies that exposure to electromagnetic fields at frequencies we commonly use pose any health risks. This is non-ionizing radiation as opposed to the ionizing radiation that is associated with the bombs or medical x-ray machines, etc. It has been demonstrated that low levels of ionizing radiation might actually be beneficial. A study has been conducted in which plant seeds which were given a small dose actually grew faster, bigger and produced greater yields than the control seeds (i.e., those not irradiated). Whether this condition is also valid for non-ionizing radiation is unknown.

Also of great concern today is the question of exposure to power-frequency fields (60 Hz). A great deal of research is being conducted with the U.S. Navy, U.S. Department of Energy, and the Electric Power Research Institute leading the way to answer the question. However, no conclusive evidence has been found.

The research was prompted by work done in the Soviet Union during the 1960s, in which reports of headaches, fatigue, and reduced male sexual potency were reported by switch-yard workers when line voltages were raised to 400-500kV.

The reason the hard proof is difficult to obtain is probably familiar to those of you that have some training in Health Physics or other related subjects. There are just too many variables to contend with. To say that a power field was the cause of a biological disorder can not be validated easily because the disorder may have been caused by some other source like exposure to x-rays or even something you eat.

In almost all cases, though, even exposure to fairly high fields for brief periods is generally not harmful because the body has the ability to repair itself or adjust to the new conditions.

It was stated earlier that the power line field is non-ionizing in nature. Let me explain this term. Molecular structures (that's chemistry) are bonded together by forces. It requires a certain amount of energy to break these molecules apart. When this occurs the molecule is said to be ionized and the energy required to do this is called the ionization energy. Many years ago a physicist named Planck discovered that there existed a relationship between energy and frequency. In fact, energy is proportional to frequency. Any energy below that necessary to ionize the molecule is called non-ionizing energy. You can now see why low frequency radiation is called non-ionizing radiation and very high frequency radiation like microwaves and higher is ionizing radiation. Since the ionizing radiation

breaks bonds, it has adverse affects on the body. At the power line frequencies this does not occur. However, energy density must also be considered. But at 60 Hz the necessary "air field" to even equal the body's metabolic rate cannot occur because dielectric breakdown would occur first. In other words, it would require a lightning bolt.

By now you have come to the conclusion that there's nothing to worry about. Right? Perhaps. But there are two mechanisms by which the extremely low frequency fields can interact with the body. They are: "stimulation of neural receptors at or near the surface of the skin, such as through the vibration of hair," and a "direct interaction between the field and individual cells." Tests on animals have demonstrated the two mechanisms and under some circumstances exposure to the ELF field has modified the animals biological clock.

However, I don't entirely believe in these lab studies because the test conditions are ridiculous. In most cases the conditions never exist in the real world. Exposure rates are increased and then the results are extrapolated so as to arrive at a real world rate and the effects are noted.

So far, compared to other health risks, the ELF fields aren't really something to worry a lot about. In fact, the worrying will probably cause more damage than the actual effects.
(ref. M. Granger Morgan et al, Power-line fields and Human Health, I.E.E.E. "Spectrum", February 1985, pps.62-68)

GOOD NEWS FOR THE JOBLESS

The results of a survey conducted by Fox-Morris Personnel Consultants recruitment firm appeared in the February 1985 issue of "Spectrum." Based on a survey of 900 U.S. employers, electronics engineers and systems analysts, as well as programmers, will be the most sought-after employees this year. Demand is predicted to be 20 % higher than last year and salaries are anticipated to rise 10-15%. Other specialists anticipated to be in demand include mechanical, industrial and design engineers in areas like computer-aided design and manufacturing, robotics, R & D, quality assurance and consumer products manufacturing.

READ ALL ABOUT...PACKET RADIO

The second edition of the second volume of "Synchronous Packet Radio using the Software Approach - AX.25 Protocol" has just been published. The text is aimed at the computer buff and the radio amateur who is interested in emulating in software the rather expensive dedicated 1200 baud packet radio controllers that interface with a host terminal or microcomputer. Included with the book is the source code written in Z-80 assembly language specifically for the Radio Shack TRS-80 models 1, 3, 4 micros. The code may be re-written for use on any Z-80 based microcomputer. The 280 page book is available for $22.00 postpaid in the U.S. from Richcraft Engineering, Ltd., One Wahmeda Industrial Park, Chautauqua, N.Y. 14722. The level of the material presented in the book is unknown.

TSUKUBA EXPO '85

After more than seven years of preparation the $450 million, 250 acre "mini-city" north of Tokyo has been opened to the public. Complete with "Buck Rogers architecture", robots and giant-screened movies, the Expo '85 technology fair which opened in mid-March should provide all visitors with memories not soon forgotten. Yasuhiro Kada, assistant secretary general of the association organizing the fare states that, "Our hope is that children who come here will think, 'Ah, science is a wonderful thing,' and devote their lives to it."

The latest technological breakthroughs (like large-scale integrated circuits) have been purposely left out of the fair. But there will be over 600 private companies representing forty-seven countries, including the United States, in 56 pavilions at the expo. Among the exhibits are:

A robot that plays an organ, another that walks on two legs, and another that lifts barbells weighing about 440 pounds.

An experimental television set producing a three-dimensional picture without the conventional colored glasses.

A 3-D film that takes the viewer inside a star and inside a crystal of ice. The images are entirely computer-generated.

The U.S. pavilion has taken artificial intelligence as its theme. A succession of some of Expo's more intellectually challenging exhibits leads visitors through the history of computers and efforts to engineer in them processes of the human brain.

Organizers predict that when the expo closes in September, 20 million people will have walk through the gate. So if you're in Japan this summer, don't miss the Expo '85 at Tsukuba. ("The Hamilton Spectator", March 23, 1985)

SOLAR CELL IMPROVEMENT

According to Zymet Inc., an affiliate of Eaton Corp., ion implantation will yield solar cells that are 15% to 20% more efficient. The implantation technique produces cells that are more sensitive to the blue end of the solar spectrum. Therefore more sunlight is converted into electricity. Zymet's ion implantation system is designed to replace conventional diffusion technology "by providing a higher yield and a more cost-effective method of doping into silicon the elements used in solar cells." ("Machine Design") (VE3JTQ)

TRANSATLANTIC 2 METER TESTS

In the UK, West Kent Amateur Radio Society is planning a major two-week DXpedition that will begin on August 17. Object of the DXpedition is to set up a station on the west coast of Ireland and make the first-ever direct transatlantic contact with North America on the 2-meter band. If you live in Eastern Canada and would like to set up a sked, contact David Green, G4OTV, 12 Culverden Down, Tunbridge Wells, Kent, UK TN4 9SB.

Also in the UK, about 100 amateurs have permission to conduct some operation in the 6-meter band. In Norway, about 25 amateurs have received similar permission. In these countries, as in most of Europe, 6-meter frequencies are used for television broadcasting, and amateurs have a 4-meter band instead. However, use of 6-meter frequencies for television is being phased out. European amateurs may have a 6-meter band in their future. (CRRL NEWS)

KEYCODE PROGRAM

BOB PATTEN, N4BP

Keycode was one of my first programming efforts with the Radio Shack TRS-80C Color Computer. It was written to prove to myself that my expensive new toy could be put to a practical use and also to familiarize myself with COLOR BASIC after having used Benton Harbor BASIC (Heathkit H-8) for the previous five years. Keycode was generating keyboard Morse the day I began writing the program but it has taken about two years to bring it to the level of completion presented herein. It is not finished yet, but will most likely see changes for years to come. For instance, N4UM continually begs me to include a keyboard buffer to allow type-ahead. This has not been done because the program is in BASIC and additional routines are likely to throw in timing delays and make the output more erratic. Maybe I'm wrong...

Anyone who knows me doesn't need to be told that the features included in Keycode were written with contest operation in mind. They include routines for sending pre-stored messages (upper case of keys 1-9), reprogramming the prestored messages, sending and auto-incrementing a contest serial number, and simplicity of changing messages and speed. The program uses a scroll protect routine to keep four lines of text of a prestored message on the screen without interfering with the heading (title, speed, serial number and last message number sent).

Operation is extremely simple. Load and run the program; the cursor waits for you to input a number to set the speed. Higher numbers produce slower sending rates and vice versa. Try numbers between 10 and 30. Once the speed is set up, you are ready to begin sending from the keyboard. Pushing any of the upper case characters on the 1-9 keys sends the messages stored in the DATA statements of the program. Special keys are the colon and asterisk. Pushing the ":" allows you to reset the speed; pushing the "*" allows you to select one of the nine message numbers and reprogram the message contents. Several keys are unused but may be user defined. As examples, I've programmed the up and down arrows to increment and decrement the serial number, ">" is programmed to send SK (end of transmission), "<" sends AR (end of message), "@" sends BT. Undefined keys are "=", "-", "+", ";", right and left arrow keys, and upper case of all four arrow keys. These keys may be defined by the user in the appropriate programs lines between 450 and 1110.

All major routines are commented. Even with all of the remarks, Keycode only uses about 6k so will run with a 16k Color BASIC machine. Dot and dash routines are near the top of the program. They simply poke location &HFF21 to turn the cassette motor on and off for predetermined time periods set by variable "S". Naturally, we don't care to turn the cassette on and off so you may want to use an adaptor cable to connect the cassette motor plug to your transmitter or to a sidetone generator. The relay contacts are well protected and polarity independent so should adequately key most modern transmitters. I would be hesitant to try to key a tube type, cathode keyed rig (high voltage and/or current). Being one of many who were dissatisfied with the original CoCo keyboard, I replaced mine with one advertised in a magazine for the Color Computer. The original keyboard was then mounted on a low profile cabinet, fitted with about 20 feet of ribbon cable, and set up to operate at the ham desk. The 20 feet of cable seems to have no effect on the reliability of the keyboard.

Routines for the undefined keys may be written into lines 450, 470, 480, 490, 790, 810, 820, 950, 970, 1080, 1100 and 1110. Edit these lines by inserting dots (GOSUB 60) and dashes (GOSUB 90) ahead of "GOTO 130" to form your characters or groups. As an example, I could edit line 1080 to read:

```
"GOSUB 90:GOSUB 60:FOR T=1 TO 2*S:NEXT T:GOSUB
60:GOSUB 60:GOSUB 60:GOSUB 60:GOSUB 90:FOR T=1 TO
2*S:NEXT T:GOSUB 90:GOSUB 60:GOSUB 60:GOSUB 60:FOR
T=1 TO 2*S:NEXT T:GOSUB 60:GOSUB 90:GOSUB 90:GOSUB
60:GOTO 130:REM N4BP"
```

and CoCo would send my call each time the space bar was pushed. The FOR:NEXT loops are included to form the spaces between characters. For sending groups, however, it would be much easier to write a data line off the prestored messages (my call is in line 2140). As written, the contest serial number can be sent only by message 3 or 4.

This is a carryover from the format used to program my four message "CMOS Super Keyer" ("QST", October, 1981). I program a different signal report into each of these two memories and select the appropriate one during contest operation. Lines 2080 and 2090 hold the data for these memories and must include "SN" where the serial number is to be inserted. The routines beginning at 1570 and 1660 substitute the current serial number for "SN" before sending the messages. Data in this listing for messages 1-4 was written for use in the ARRL Sweepstakes.

I will be happy to answer any questions you have concerning Keycode IF you include an S.A.S.E.

If you would like a copy of Keycode on cassette (6K+ of coding can be tedious) send $5.00.
(2311 Nassau Drive, Miramar, FL 33023)

See you in the contests. 73, Bob, N4BP

Well known contester Frank Donovan, W3LPL, is sharing his experiences in contesting at Dayton's Contest Forum. W3LPL has been around for many years and has achieved many Tops with a well layed out station.

```
10 REM *******KEYCODE**********
20 REM ***BOB PATTEN, N4BP*****
30 REM ***2311 NASSAU DRIVE****
40 REM ***MIRAMAR, FL. 33023***
50 CLS:PRINT@234,"WORKING...":GOTO160
60 REM DOT GENERATOR
70 POKE&HFF21,&H3C:FORT=1TO5:NEXT
80 POKE&HFF21,&H34:FORT=1TO5:NEXT:RETURN
90 REM DASH GENERATOR
100 POKE&HFF21,&H3C:FORT=1TO4*5:NEXT
110 POKE&HFF21,&H34:FORT=1TO5:NEXT:RETURN
120 REM CHARACTER SPACE
130 FORT=1TO2*5:NEXT:IFM=0THEN310
140 REM GOTO ONE OF NINE MESSAGES
150 ONM GOTO1500,1560,1650,1740,1800,1860,1920,1980,2040
160 REM READ DATA INTO MESSAGES          (1 - 9)
170 READA$,B$,C$,D$,E$,F$,G$,H$,I$
180 REM INITIALIZE VARIABLES
190 N1=96:N2=91:N3=81:N4=71:N5=65:N6=58:N7=48:N8=42:N9=11:M=0:SN=1
200 REM SET UP SCROLL PROTECT
210 FORN=&H0E00 TO &H0E49
220 READM$:POKEN,VAL("&H"+M$):NEXTN
230 EXEC &H0E00
240 REM INITIALIZE SCREEN
250 CLS:PRINT@38,"MORSE CODE GENERATOR":PRINT@76,"BY N4BP"
260 PRINT@139,"SPEED :";:PRINT@204,"SN : ";SN:PRINT@363,"MESSAGE :"
270 REM SPEED ROUTINE
280 PRINT@147,"";:LINEINPUTS$
290 S=VAL(S$):PRINT@480,""
300 REM SEND ROUTINE
310 S$=INKEY$:IFS$=""THEN310
320 IFS$=CHR$(94)THEN340
330 PRINTS$;
340 Z1=ASC(S$)
350 REM GOTO CHARACTER GENERATOR
360 ONN1-Z1 GOTO450,460,470,480,490
370 ONN2-Z1 GOTO500,510,520,530,540,550,560,570,580,590
380 ONN3-Z1 GOTO600,610,620,630,640,650,660,670,680,690
390 ONN4-Z1 GOTO700,710,720,730,740,750
400 ONN5-Z1 GOTO760,770,780,790,800,810,820
410 ONN6-Z1 GOTO830,840,850,860,870,880,890,900,910,920
420 ONN7-Z1 GOTO930,940,950,960,970,980
430 ONN8-Z1 GOTO990,1000,1010,1020,1030,1040,1050,1060,1070,1080
440 IFZ1=13THEN310ELSEONN9-Z1 GOTO1090,1100,1110
450 GOTO130:REM SHIFT ^
460 SN=SN+1:PRINT@204,"SN : ";SN:PRINT@480,"":GOTO130:REM ^
470 GOTO130:REM SHIFT/RIGHT ARROW
480 GOTO130:REM CLEAR
490 GOTO130:REM SHIFT/DOWN ARROW
500 GOSUB90:GOSUB90:GOSUB60:GOSUB60:GOTO130:REM Z
510 GOSUB90:GOSUB60:GOSUB90:GOSUB90:GOTO130:REM Y
520 GOSUB90:GOSUB60:GOSUB60:GOSUB90:GOTO130:REM X
530 GOSUB60:GOSUB90:GOSUB90:GOTO130:REM W
540 GOSUB60:GOSUB60:GOSUB60:GOSUB90:GOTO130:REM V
550 GOSUB60:GOSUB60:GOSUB90:GOTO130:REM U
560 GOSUB90:GOTO130:REM T
570 GOSUB60:GOSUB60:GOSUB60:GOTO130:REM S
580 GOSUB60:GOSUB90:GOSUB60:GOTO130:REM R
590 GOSUB90:GOSUB90:GOSUB60:GOSUB90:GOTO130:REM Q
600 GOSUB60:GOSUB90:GOSUB90:GOSUB60:GOTO130:REM P
610 GOSUB90:GOSUB90:GOSUB90:GOTO130:REM O
620 GOSUB90:GOSUB60:GOTO130:REM N
630 GOSUB90:GOSUB90:GOTO130:REM M
640 GOSUB60:GOSUB90:GOSUB60:GOSUB60:GOTO130:REM L
650 GOSUB90:GOSUB60:GOSUB90:GOTO130:REM K
660 GOSUB60:GOSUB90:GOSUB90:GOSUB90:GOTO130:REM J
670 GOSUB60:GOSUB60:GOTO130:REM I
680 GOSUB60:GOSUB60:GOSUB60:GOSUB60:GOTO130:REM H
690 GOSUB90:GOSUB90:GOSUB60:GOTO130:REM G
700 GOSUB60:GOSUB60:GOSUB90:GOSUB60:GOTO130:REM F
710 GOSUB60:GOTO130:REM E
720 GOSUB90:GOSUB60:GOSUB60:GOTO130:REM D
730 GOSUB90:GOSUB60:GOSUB90:GOSUB60:GOTO130:REM C
740 GOSUB90:GOSUB60:GOSUB60:GOSUB60:GOTO130:REM B
750 GOSUB60:GOSUB90:GOTO130:REM A
760 GOSUB90:GOSUB60:GOSUB60:GOSUB60:GOSUB90:GOTO130:REM @
770 GOSUB60:GOSUB60:GOSUB90:GOSUB90:GOSUB60:GOSUB60:GOTO130:REM ?
780 GOSUB60:GOSUB60:GOSUB60:GOSUB90:GOSUB60:GOSUB90:GOTO130:REM >
790 GOTO130:REM =
800 GOSUB60:GOSUB90:GOSUB60:GOSUB90:GOSUB60:GOTO130:REM <
810 GOTO130:REM /
820 GOTO280:REM '
830 GOSUB90:GOSUB90:GOSUB90:GOSUB90:GOSUB60:GOTO130:REM 9
840 GOSUB90:GOSUB90:GOSUB90:GOSUB60:GOSUB60:GOTO130:REM 8
850 GOSUB90:GOSUB90:GOSUB60:GOSUB60:GOSUB60:GOTO130:REM 7
860 GOSUB90:GOSUB60:GOSUB60:GOSUB60:GOSUB60:GOTO130:REM 6
870 GOSUB60:GOSUB60:GOSUB60:GOSUB60:GOSUB60:GOTO130:REM 5
880 GOSUB60:GOSUB60:GOSUB60:GOSUB60:GOSUB90:GOTO130:REM 4
890 GOSUB60:GOSUB60:GOSUB60:GOSUB90:GOSUB90:GOTO130:REM 3
900 GOSUB60:GOSUB60:GOSUB90:GOSUB90:GOSUB90:GOTO130:REM 2
910 GOSUB60:GOSUB90:GOSUB90:GOSUB90:GOSUB90:GOTO130:REM 1
920 GOSUB90:GOSUB90:GOSUB90:GOSUB90:GOSUB90:GOTO130:REM 0
930 GOSUB90:GOSUB60:GOSUB60:GOSUB90:GOSUB60:GOTO130:REM /
940 GOSUB60:GOSUB90:GOSUB60:GOSUB90:GOSUB60:GOSUB90:GOTO130:REM .
950 GOTO130:REM -
960 GOSUB90:GOSUB90:GOSUB60:GOSUB60:GOSUB90:GOSUB90:GOTO130:REM ,
970 GOTO130:REM +
980 GOSUB2220:GOTO1130:REM *
990 GOSUB2220:GOTO1990:REM MSG 9
1000 GOSUB2220:GOTO1930:REM MSG 8
1010 GOSUB2220:GOTO1870:REM MSG 7
1020 GOSUB2220:GOTO1810:REM MSG 6
1030 GOSUB2220:GOTO1750:REM MSG 5
1040 GOSUB2220:GOTO1660:REM MSG 4
1050 GOSUB2220:GOTO1570:REM MSG 3
1060 GOSUB2220:GOTO1510:REM MSG 2
1070 GOSUB2220:GOTO1450:REM MSG 1
1080 GOTO130:REM SPACE
1090 SN=SN-1:PRINT@204,"SN : ";SN:PRINT@480,"":GOTO130:REM DOWN ARROW
1100 GOTO130:REM RIGHT ARROW
1110 GOTO130:REM LEFT ARROW
1120 REM SELECT MEMORY TO PROGRAM
1130 PRINT@373,"";:LINEINPUTM1$
1140 M1=VAL(M1$)
1150 IFM1<1 OR M1>9 THEN1120
1160 ONM1 GOTO1170,1200,1230,1260,1290,1320,1350,1380,1410
1170 REM MESSAGE (1)
1180 PRINT@418,"";
1190 LINEINPUTA$:GOSUB2220:GOTO300
1200 REM MESSAGE (2)
1210 PRINT@418,"";
1220 LINEINPUTB$:GOSUB2220:GOTO300
1230 REM MESSAGE (3)
1240 PRINT@418,"";
1250 LINEINPUTC$:GOSUB2220:GOTO300
1260 REM MESSAGE (4)
1270 PRINT@418,"";
1280 LINEINPUTD$:GOSUB2220:GOTO300
1290 REM MESSAGE (5)
1300 PRINT@418,"";
1310 LINEINPUTE$:GOSUB2220:GOTO300
1320 REM MESSAGE (6)
1330 PRINT@418,"";
1340 LINEINPUTF$:GOSUB2220:GOTO300
1350 REM MESSAGE (7)
1360 PRINT@418,"";
1370 LINEINPUTG$:GOSUB2220:GOTO300
1380 REM MESSAGE (8)
1390 PRINT@418,"";
1400 LINEINPUTH$:GOSUB2220:GOTO300
1410 REM MESSAGE (9)
1420 PRINT@418,"";
1430 LINEINPUTI$:GOSUB2220:GOTO300
1440 RETURN
1450 REM SEND MESSAGE (1)
1460 PRINT@373,"1":PRINT@418,A$
1470 M=1:FORA=1TOLEN(A$)
1480 IFINKEY$=CHR$(13)THENM=0:GOSUB2220:GOTO310
1490 Z1=ASC(MID$(A$,A,1)):GOTO360
1500 NEXTA:M=0:GOSUB2220:GOTO310
1510 REM SEND MESSAGE (2)
1520 PRINT@373,"2":PRINT@418,B$
1530 M=2:FORB=1TOLEN(B$)
1540 IFINKEY$=CHR$(13)THENM=0:GOSUB2220:GOTO310
1550 Z1=ASC(MID$(B$,B,1)):GOTO360
1560 NEXTB:M=0:GOSUB2220:GOTO310
1570 REM SEND MESSAGE (3)
1580 FORC=1TOLEN(C$)
1590 IFMID$(C$,C,2)="SN"THENC1$=LEFT$(C$,C-2)+STR$(SN)+RIGHT$(C$,LEN(C$)-C-1):GO
TO1610
1600 NEXTC:C1$=C$
1610 PRINT@373,"3":PRINT@418,C1$
1620 M=3:FORC=1TOLEN(C1$)
1630 IFINKEY$=CHR$(13)THENM=0:GOSUB2220:GOTO310
1640 Z1=ASC(MID$(C1$,C,1)):GOTO360
1650 NEXTC:SN=SN+1:PRINT@209,SN:PRINT@480,"":M=0:GOSUB2220:GOTO310
1660 REM SEND MESSAGE (4)
1670 FORD=1TOLEN(D$)
1680 IFMID$(D$,D,2)="SN"THEND1$=LEFT$(D$,D-2)+STR$(SN)+RIGHT$(D$,LEN(D$)-D-1):GO
TO1700
1690 NEXTD:D1$=D$
1700 PRINT@373,"4":PRINT@418,D1$
1710 M=4:FORD=1TOLEN(D1$)
1720 IFINKEY$=CHR$(13)THENM=0:GOSUB2220:GOTO310
1730 Z1=ASC(MID$(D1$,D,1)):GOTO360
1740 NEXTD:SN=SN+1:PRINT@209,SN:PRINT@480,"":M=0:GOSUB2220:GOTO310
1750 REM SEND MESSAGE (5)
1760 PRINT@373,"5":PRINT@418,E$
1770 M=5:FORE=1TOLEN(E$)
1780 IFINKEY$=CHR$(13)THENM=0:GOSUB2220:GOTO310
1790 Z1=ASC(MID$(E$,E,1)):GOTO360
1800 NEXTE:M=0:GOSUB2220:GOTO310
1810 REM SEND MESSAGE (6)
1820 PRINT@373,"6":PRINT@418,F$
1830 M=6:FORF=1TOLEN(F$)
1840 IFINKEY$=CHR$(13)THENM=0:GOSUB2220:GOTO310
1850 Z1=ASC(MID$(F$,F,1)):GOTO360
1860 NEXTF:M=0:GOSUB2220:GOTO310
1870 REM SEND MESSAGE (7)
1880 PRINT@373,"7":PRINT@418,G$
1890 M=7:FORG=1TOLEN(G$)
1900 IFINKEY$=CHR$(13)THENM=0:GOSUB2220:GOTO310
1910 Z1=ASC(MID$(G$,G,1)):GOTO360
1920 NEXTG:M=0:GOSUB2220:GOTO310
1930 REM SEND MESSAGE (8)
1940 PRINT@373,"8":PRINT@418,H$
1950 M=8:FORH=1TOLEN(H$)
1960 IFINKEY$=CHR$(13)THENM=0:GOSUB2220:GOTO310
1970 Z1=ASC(MID$(H$,H,1)):GOTO360
1980 NEXTH:M=0:GOSUB2220:GOTO310
1990 REM SEND MESSAGE (9)
2000 PRINT@373,"9":PRINT@418,I$
2010 M=9:FORI=1TOLEN(I$)
2020 IFINKEY$=CHR$(13)THENM=0:GOSUB2220:GOTO310
2030 Z1=ASC(MID$(I$,I,1)):GOTO360
2040 NEXTI:M=0:GOSUB2220:GOTO310
2050 REM DATA FOR MESSAGES
2060 DATA"CQ SS DE N4BP N4BP SS K"
2070 DATA"TU DE N4BP SS K"
2080 DATA"NR SNB DE N4BP 55 S FLA BK"
2090 DATA"NR SNB DE N4BP 55 S FLA BK"
2100 DATA"CQ CQ CQ DE  N4BP QRP  N4BP QRP  N4BP QRP  K"
2110 DATA"TNX CALL OM@  UR RST 599  599  NR MIAMI  NR MIAMI@"
2120 DATA"NAME IS BOB  BOB@  TX RUNS  5W  5W  ON SOLAR PWR@"
2130 DATA"HW CPY?  <"
2140 DATA"N4BP"
2150 REM DATA FOR SCROLL PROTECT
2160 DATA BE,01,68,AF,8C,0C,30,8C,0C,BF,01,68,86,39,A7,8C
2170 DATA EF,39,55,55,0C,34,17,0D,6F,26,10,9E,88,8C,05,E0
2180 DATA 2D,09,81,0D,27,0A,8C,05,FF,27,05,35,17,6E,9C,E2
2190 DATA A6,8C,E1,C6,20,3D,C3,04,00,30,8C,09,34,10,1F,01
2200 DATA 34,16,7E,A3,4E,0A,89,20,E2,80
2210 REM CLEAR SCROLL AREA
2220 FORN=1TO4:PRINT:NEXT:RETURN
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CONTEST RULES

FRANK ANZALONE, W1WY
CQ Magazine

Swiss Helvetia Contest

1300Z Sat. to 1300Z Sun., Apr. 27–28

The Swiss usually try to activate some of the rare Cantons, so this offers a good opportunity to build up your totals for the attractive Helvetia Award. Confirmation of all 26 Cantons is required. Only contacts made after January 1, 1979 are valid.

All bands may be used, 1.8–28 MHz, phone or CW (but not the new WARC bands). The same station may be worked on each band for QSO and multiplier credit, but only on one mode, either phone or CW.

Exchange: RS(T) plus a three-figure QSO number. Swiss stations will also include two letters identifying their Canton. Abbreviations of the Cantons are as follows: AG, AI, AR, BE, BL, BS, FR, GE, GL, GR, JU, LU, NE, NW, OW, SG, SH, SO, SZ, TG, TI, UR, VD, VS, ZG, ZH.

Scoring: Each HB contact is worth 3 points. The sum of Cantons worked on each band is your multiplier (a possible total of 26 on each band).

Final Score: Total QSO points multiplied by the sum of Cantons worked on each band.

Awards: Certificates to the top scorers in each country and each USA and Canadian call area.

Indicate a Canton in a separate column for each band the first time it is worked. Check your log for duplicate contacts and include a summary sheet showing the scoring and your name and address in block letters. The usual signed declaration is also requested.

Mail your log within 30 days to: USKA Traffic Manager, Walter Schmutz, Gantrischweg 1, CH-3114 Oberwichtrach, Switzerland.

Applications in the form of QSL cards for the Helvetia Award go to: Max Bindschedler, HB9MX, Strahleggweg 28, CH-8400 Winterthur, Switzerland.

County Hunters SSB Contest

0001Z Sat. to 2400Z Sun., May 4–5
(Off: 0800Z to 1200Z each day)

This is the 14th annual contest sponsored by the Mobile Amateur Radio Awards Club to increase activity for the County Awards program. The two 4-hour rest periods are mandatory.

Emphasis is on mobile operation. Fixed stations may work other fixed stations, but only once regardless of the band. Mobiles may be contacted from each county or band change. Mobiles contacted on a county line count as one QSO but two multipliers. Net QSOs do not count.

Exchange: Signal report, county, state, and country for DX stations. (Mixed-mode contacts are permitted providing one station is on s.s.b.)

Points: Contacts with a fixed W/K or VE count 1 point; 5 points if with a US portable; 5 points if with a DX station (KH6 and KL7 are DX). Mobile contacts are worth 15 points; mobile teams 30 points.

Multiplier: Each U.S. county and each VE station worked.

Final Score: Total QSO points times (U.S. counties + VE stations worked).

Frequencies: Plus or minus 10 kHz, 3930, 7230, 14285, 21375, 28585. There is a "Mobile Window" 5 kHz each side of 3930, 7225, and 14280. Fixed stations are requested to QSY after working a mobile in the "Window."

Awards: Six MARAC plaques to the first- and second-place U.S. mobile, fixed U.S./Canadian, portable operating outside own county, DX station, and mobile team. Certificates to the top 10 mobile, top 10 fixed U.S./Canada, top 5 portables, and highest scorers in each DX country.

It is suggested that you write to WA5DTK for detailed rules and log forms. Send a large SASE with your request.

All entries must be received by June 3rd and go to: Barry Brewer, WA5DTK, P.O. Box 65, Randolph AFB, TX 78148. Winners will be announced at the 1985 Independent County Hunters Convention in July and in the MARAC newsletter.

Florida QSO Party

May 4, 1400Z–1900Z Saturday
May 5, 0001–0500 & 1500–2300 Sunday

This is the 19th annual QSO Party sponsored by *Florida Skip*. The same station may be worked on each band and on each mode. Phone and CW are separate contests and require separate logs. FL stations may work other FL stations, but for QSO points only.

Fla. stations are divided into two classes. Class A—Portables and mobiles operating outside own county using emergency power of 100 watts or less output. Class B—All other single and multi-operator stations.

Exchange: RS(T) and QTH. County for FL; state, VE province, or country for others.

Scoring: *For Florida*—One point per QSO. Multiply total by sum of states (49), VE provinces (12), and DX countries (maximum of 27) worked (maximum multiplier of 88). Class A stations multiply total score by 1.5 factor.

Out-of-state—Two points for each FL contact. Multiply total by FL counties worked (maximum of 67).

Frequencies: C.W.—3555, 7055, 14055, 21055, 28055. S.S.B.—3945, 7279, 14279, 21379, 28579. (Also 160 and 2 meters.)

Awards: Certificates, both phone and CW, to the top single operator score in each state, province, and DX country, and each FL county. There are five plaques as follows: to the top single operator in FL and out-of-state, both on CW and SSB, and to the FL club with the highest aggregate score.

There is the usual disqualification clause for taking credit for excessive duplicate contacts and multipliers and other infractions.

Include a summary sheet showing the scoring and all essential information, include a dupe sheet for entries with 200 or more contacts, and the usual signed declaration.

A large SASE will get you sample log forms. Mailing deadline for all entries is June 3rd to: Florida Skip Contest Committee, c/o North Florida ARA, P.O. Box 9673, Jacksonville, FL 32208

G-QRP Club SSB Activity

Saturday & Sunday, May 4 & 5

This is not a contest, but as the name implies, it is an event to promote QRP activity. The following times (GMT) and frequencies will be used for this event.

3690 kHz—1200–1300, 1400–1500.

7090 kHz—1100–1200, 2000–2100.

14285 kHz—0900–1000, 1300–1400, 1730–2000, and 2200–2300.

21385/28885 kHz—1000–1100, 1500–1730

In addition to the above events, members of the group have weekly activity periods on Sundays between 1100Z and 1230Z and again from 1400Z to 1530Z on the above international QRP frequencies.

You are invited to send your reports of participation to: Christopher J. Page, G4BUE, Alamosa, The Paddocks, Upper Beeding, Steyning, West Sussex, BN4 3JW England.

USSR CQ-M Contest

2100Z Sat. to 2100Z Sun., May 11–12

We have not received an official announcement for this year's CQ-M contest. Rules should be the same as last year, but will be repeated for the benefit of those who did not see them.

Keep in mind that this is a world-wide-type contest, so do not limit your operation to the USSR only. Contacts may be made on CW or SSB, 3.5 through 28 MHz. The same station may be worked on each band, but not both modes for QSO and multiplier credit. Contacts via Oscar count as an extra band if made on UHF.

Classes: (A) Single operator, single band. (B) Single operator, all band. (C) Multi-operator, single transmitter, all band only. (D) S.w.l.

Exchange: RS(T) plus a three-figure QSO number. USSR stations add the number of their region (oblast) to their report.

Points: Contacts between stations on the same continent one point; different continents three points. Own country may be worked for multiplier credit but no QSO points.

Multiplier: Is determined by the number of countries worked on each band. The USSR "R-150-S" list is the standard, which essentially is the same as our DXCC, plus the following oblasts: 002, 013, 014, 056, 084-5-6-7-8-9, 090-1-2-3-4-5-6-7-8, 159, and UA1 Novaya Zemlya, UA0 Kuril Is., UA0 New Siberian Is.

Final Score: Total QSO points from all bands times the country/oblast multiplier from each band.

The SWL's get one point for reporting one station in the exchange, and three points if both stations are reported.

Awards: A large selection of trophies, medals, and badges in all classes for overseas winners. Badges to all entries contacting at least 10 USSR stations.

Contest contacts may be credited for USSR awards in lieu of QSL cards if request is made with entry (R-150-S, R-100-0, W-100-U, R-15-R, R-6-K, R-10-R).

Mailing deadline is July 1st to: Krenkel Central Radio Club, CQ-M Contest Committee, P.O Box 88, Moscow, USSR.

ARI International Contest

1600Z Sat. to 1600Z Sun., May 18–19

It's the world working the Italian stations in this one, including San Marino, Vatican City, and SMOM.

Classes: Single operator, one mode—CW, SSB, or RTTY—or mixed modes. Multi-operator, single transmitter, all modes and SWL.

Bands: All six bands 1.8–28 MHz.

Exchange: RS(T) plus a QSO no. starting with 001. Italian stations will include two letters indentifying their province.

Scoring: Europeans earn 2 points per QSO; others 4 points.

Multiplier: Each province, T7, HV, SMOM, and stations IY1TTM and IY4FGM worked on each band.

Final Score: Total QSO points times the sum of the multipliers from each band. A declared score exceeding more than 5% of the actual score means disqualification.

Awards: Certificates to the top-scoring stations in each country for each category. Special awards to the five leading stations in each class.

Use a separate log sheet for each band, and a summary sheet showing the scoring from each band and other essential information is a must. Include your name and address in block letters.

The Worked All Italian Provinces award is issued to stations working 60 different provinces. Application can be made by including a separate list of provinces worked during the contest with your log. QSL cards are not required.

Mailing deadline for your logs is June 30th to: Contest Manager, c/o A.R.I., via Scarlatti 31, 20124 Milano, Italy; or Giorgio Beretta, I2VXJ, via Sciesa 24, 20135 Milano, Italy.

Michigan QSO Party

1800Z Sat. to 0300Z Sun., May 18–19
1100Z Sun. to 0200Z Mon., May 19–20

This year's party is again being sponsored by the Oak Park ARC. The same station may be worked on each band and mode, portable/mobile in each county change. Contacts between Mich. counties are permitted for multiplier credit.

Exchange: RS(T), QSO no., and QTH. County for Mich.; state or country for all others.

Scoring: *For Mich.*—One point for phone contacts, 2 points if on CW, and 5 points if with W8MB. Multiply total by (states + countries + Mich. counties) worked for final score. KH6 and KL7 count as states, VE as a country (maximum of 85 possible).

Out-of-state—One point for each Mich. phone QSO, 2 points if on CW, and 5 points if it's with club station W8MB. Multiply total by Mich. counties worked (maximum of 83).

VHF scoring same as above except multipliers from each band are added together for total multiplier. Repeater contacts are not permitted.

Frequencies: CW—1810, 3540, 3725, 7035, 7125, 14035, 21035, 21125, 28035, 28125. SSB—1815, 3905, 7280, 14280, 21380, 28580. VHF—50.125, 145.025, 146.52.

Awards: Certificates to winners in each state, country, and Mich. county (minimum of 50 QSO's). Seven plaques to top winners: single operator, upper peninsula, multi-operator, VHF, mobile, and aggregate club score, and out-of-state and Mich.

Party contacts do not count toward the Michigan Achievement Award unless one fact about Mich. is exchanged.

A summary sheet is requested with your entry showing the scoring and other pertinent information, plus a signed declaration that rules and regulations have been observed. Include a large SASE for a copy of the results.

Mailing deadline is June 30th to: Mark Shaw, K8ED, 3810 Woodman, Troy, MI 48084.

Michigan Achievement Week

May 18–25, 1985

All contacts with Michigan stations made during Michigan Week, May 18–25

as well as Party QSO's, may be used for this award if the following requirements are fulfilled.

1. Mich. stations—Submit a log with information, name and address of station worked if possible, of 15 or more QSO's with out-of-state or DX stations with information about Mich.

2. Out-of-state stations including Canada—Submit a log with information, name and address if possible, of at least 5 Mich. stations worked who related facts about Mich.

3. DX stations—Work at least one Mich. station, with log information, name, and address, and relate fact about Mich. given by the station worked.

4. Only contacts made during Michigan Week, May 18–25, are valid for this award.

Applications for certificates must be postmarked no later than July 1, 1985,

and mailed to: Governor James Blanchard, Lansing, MI 48902.

(Facts about Michigan: State Bird, Robin; Fish, Trout; Flower, Apple Blossom; Tree, White Pine; Stone, Petoskey; or any local facts.)

CQ WW WPX CW Contest

0000Z Sat. to 2400Z Sun., May 25–26

This is a reminder of our CQ WPX CW Contest coming up at the end of this month. Results of last year's contest in this issue may be used as a guide to choose the best class for your operation.

Rules and scoring are exactly the same as for the s.s.b. section in March, and these rules were given in detail in the January issue, with a follow-up in the March Calendar. A few items to keep in mind are as follows:

Par. I—Only 30 hours out of the 48-hour contest period may be used by single operator stations. The off times may be taken in up to five periods.

Par. IV—Multi-operator, single transmitter. Only one transmitter and one band permitted during the same time period (defined as 10 minutes). No QSYing to another band to pick up a new multiplier.

Par. VI—QSO points on the three lower bands—7, 3.5, and 1.8 MHz—are worth double those for contacts on 28, 21, and 14 MHz. Own country may be worked, but for multiplier credit only (making U.S. QSO's very attractive).

Par. VII—The prefix multiplier is counted once only, not once on each band. Definition of a prefix is clearly spelled out in the rules, and was again reviewed in the March Calendar. The WPX Awards list can no longer be used as a guide for contest operation.

Stations operating in a call area other than that of the call sign are required to indicate the area of operation. The portable prefix is the multiplier (i.e., W8IMZ/4 counts as W4; N8BJQ/KV4 counts as KV4).

Par. IX—There will be 19 plaques awarded in this year's contest. Eligibility remains at 2 years except for areas in categories as indicated.

Mailing deadline is July 10th, but will be extended for rare isolated areas. Be sure to indicate CW on the envelope.

All logs go to: *CQ* Magazine, WPX Contest, 76 N. Broadway, Hicksville, NY 11801 U.S.A. Questions pertaining to the WPX Contest can be sent to: WPX Contest Director, Steve Bolla, N8BJQ, via *CQ*.

CLARA AC/DC "Mystery" Contest

0000Z Tues. to 0000Z Wed., May 28–29

This is a new one organized by the Canadian Ladies ARA. It's open to YL's as well as OM's and to SWL's, too. Each CLARA station may be contacted twice, once on phone and again on CW, or on the same mode on two different bands.

Exchange: Name, QSO no., RS(T), and QTH if a CLARA member. There will be three "mystery" unidentified stations operating.

Scoring: CLARA members score 1 point for each QSO with a non-member (YL or OM), 2 points if it's with another member, and 3 points if it's on CW.

Non-members, 2 points for each CLARA contact, and 3 points if it's on CW.

Multiply above by number of VE provinces/territories worked for the total score.

The contest manager will add 10 points to the base score for each "mystery" station worked.

Frequencies: Phone—3773, 3900, 7150, 14160, 14280, 21300, 28488, 28588. CW—3690, 7035, 14035, 21035, 28035. (No net, list, or 10 or 2 meter repeaters.)

Awards: CLARA members, first-place cup and certificate, second-place certificate. Non-members, first-place plaque, second-place certificate. And a certificate to SWL and DX station winners. All entries are eligible for a mini prize drawing.

All logs must be received no later than July 15th by the Contest Manager, Muriel Foisy, VE7LQH, RR #1, Pender Island, B.C., Canada VØN 2MØ.

New York State QSO Party

1600Z Sat. to 0400Z Sun., June 1–2

This is the second year for this party sponsored by the Salt City DX Association. It's a shorty—only 12 hours long, Saturday afternoon and night local EST. It should attract lots of activity.

The same station may be worked on each band and each mode for QSO point credit.

Exchange: RS(T) and QTH. County for New York stations; state, VE provinces, or country for DX stations.

Scoring: One point for phone contacts, two points if on CW. NY stations multiply total QSO points by the number of states, provinces, and DX countries worked. Others multiply total NY QSO points by the number of NY counties worked (maximum of 62).

Frequencies: Phone—1835, 3905, 7280, 14298, 21380, 28580. C.W.—1810, 3540, 7035, 14035, 21035, 28035. Novice—3725, 7125, 21125, 28125.

Awards: Certificates to the winners in each state, province, DX country, and NY county.

All entries must be received no later than July 15th and go to: John Bonar, NA2C, 177 Milnor Avenue, Syracuse, NY 13224.

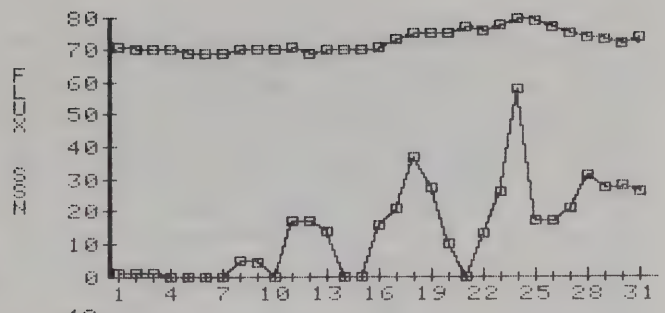
All Asian Phone

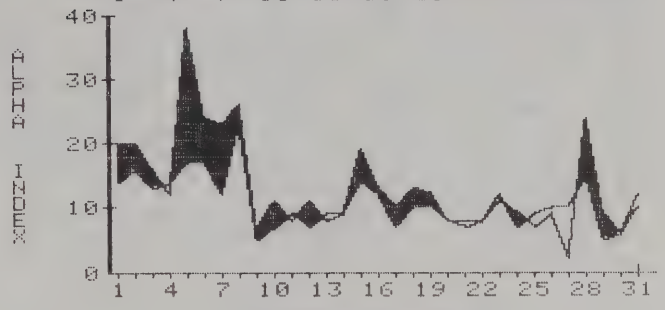
7 MHz		21 MHz	
WA6VNR	24,603	KS9U	486
N6AW	19,690	WA3DMH	378
NP4P	48	TI2LO	30
14 MHz		**28 MHz**	
W6OK	7,440	K7SS	1
KE5IV	6,524		
W5ZR	6,300	**All Band**	
KA2BBZ	2,870	K6HNZ	302,500
KE5CK	2,772	N5JB	31,944
AA6T	2,170	KB5FU	27,057
N4MM	1,632	K3ZO	15,272
K1KI	1,512	K4RZ	3,825
KO7G	1,464	WD8IXE	3,744
WA7CGR	1,311	LU3YL/W4	2,170
W4WIJ	1,125	VE4RP	1,653
WB4UBD	888	**Multi-Opr.**	
KJ7I	198	K9MWM/8	151,894
KA7FEF	126	KM7U	390
WB5YKD	104	VE7EPN	28,938
AA6EE	70	4U1UN	2,988
VE7AV	4,368		
VE3CUI	330	**Helvetia "26"**	
VE2AE/3	304	W4OEL	6,669
HI8GB	1,025	KA2DYB	3,813
YLRL Anniv. Party		K2SX	2,940
CW		NC2V	2,592
K4AOH	Gold Cup	W8DA	1,380
WD8MEV	Certificate	K2NU	1,080
KH8E	Certificate	WA8UHQ	585
SSB		W1CNU	270
DJØEK	Gold Cup	W1OPJ	48
WD4NKP	Certificate	VO1AW	7,812
K4AOH	Certificate		

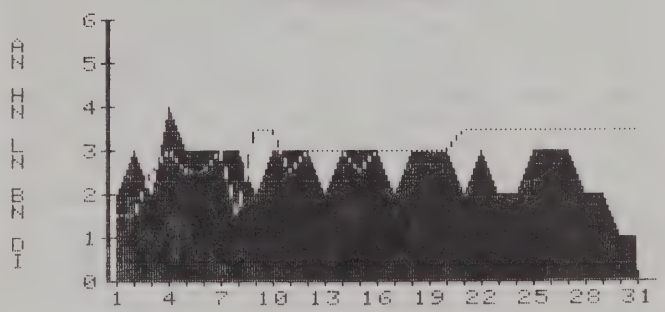
European WAEDC Contest
1984 U.S.A. & Canada Results

W2YV	936,240	KV9S	5,148
	(Opr. KQ2M)	W7LNG	4,636
KZ2S	749,952	K23EID	3,200
KC1F	431,935		(Opr. K6EID)
N84AR/4	181,584	KE23PQ	2,952
	(Opr. N8AR/4)		(Opr. KE8PQ)
K2SX	153,955	AA23EE	2,856
K1XM	147,128		(Opr. AA6EE)
K5KLA	142,206	W9QWM	2,844
K4YKZ	113,444	W5EIJ	1,710
N23AW	96,312	K4FW/8	1,290
	(Opr. N6AW)	W5NR	1,050
K4PQL	91,468	KA7FEF	540
K4BAI	78,680	WB8HDO	540
W5ZR	65,780	W1OPJ	352
N8BC	64,864	NN3SI	120
K9BG	63,788		
N5JB	57,536	**Canada**	
W3ARK	55,286	VE3ST	9,180
W6BIP	49,000	VO1AW	4,920
W2DW	45,780	VE3OMU	780
KQ1F	44,368		
W8SJRU	40,414	**Multi-Opr.**	
K2POF	39,672	KQ3S/8	12,768
KW2J	37,719		
KR2Q	35,112	**Continental Leaders**	
W8UVZ	34,204	Europe	YU3EY
K4FPF	20,500	Africa	5Z4MX
K8CW	20,485	Asia	UA9SA
W4KO	18,988	N. Amer.	W2YV
W2UP	16,796	S. Amer.	LU1EWL
W3HDH	14,800	Oceania	VK2APK
W3KV	11,242		
KS7T	10,992	**Multi-Opr.**	
W9GXR	10,748	Europe	HG5A
W1CNU	8,760	Africa	VQ9OI
W2KTF	8,470	Asia	UZ9CWW
KT1O	8,250	N. Amer.	KQ3S/8
K84XT	6,500		

KH6BZF PROPAGATION REPORT







Statistical information is compiled by KH6BZF and processed on a computer by VE3BMV.

The first diagram shows the value of solar flux (top curve) and SSN - sunspot number (bottom curve). The X axis and scale is the same for both. The Y - axis is calibrated in days of the month.

The second diagram shows variation of the Alpha Index for each day. The dark shaded area shows increases, while the white area shows decreases in the value of the Alpha Index for each day.

The third diagram shows the value of the K Index (shaded area) on a scale from 0 to 6. The dotted line represents the propagation quality where the scale is: from 5 = Above Normal to 1 = Disturbed.

FORECAST:

BEST HF CONDX: 06-11, 22-26 APR
BEST VHF CONDX: 19 APR

MAR '85	CONDX	SOL FLUX	LEVEL	SSN#	GEOMAGNETIC LEVEL	ALPHA INDEX	K INDX	NOTES
01	DIS-LN	071	VY LOW	001	M.S. LEVELS-ACTIVE	14/20	#K=2	
02	DIS-LN	070	VY LOW	001	ACTIVE-UNSETTLED	16/20	#K=3	Stormy Periods
03	BN-LN	070	VY LOW	001	ACTIVE-UNSETTLED	13/16	#K=2	
04	LN	070	VY LOW	000	ACTIVE-UNSETTLED	14/12	#K=4	Active Periods
05	LN-BN	069	VY LOW	000	M.S. LEVELS-ACTIVE	17/38	#K=3	05/06-1200&05/2100-06/000 UTC
06	LN-BN	069	VY LOW	000	ACTIVE-STORMY	17/24	#K=3	Stormy 06/06-0900 UTC
07	LN	069	VY LOW	000	ACTIVE-UNSETTLED	12/23	#K=3	No Sunspots
08	BN-DIS	070	VY LOW	005	UNSETTLED-MINOR STORM	23/26	#K=3	RGN 4630(3), 4631(2)
09	HN-LN	070	VY LOW	004	UNSETTLED-QUIET	05/07	#K=2	RGN 4630(4)
10	HN-LN	070	VY LOW	000	QUIET-UNSETTLED	07/11	#K=3	No Sunspots
11	LN-BN	071	VY LOW	017	UNSETTLED-ACTIVE	09/08	#K=3	RGN 4631(2), 4632(5)
12	LN	069	VY LOW	017	QUIET-UNSETTLED	07/11	#K=3	RGN 4632(7)
13	LN	070	VY LOW	014	QUIET-UNSETTLED	09/08	#K=2	RGN 4632(4)
14	LN	070	VY LOW	000	QUIET-UNSETTLED	09/09	#K=3	STRATWARM ALERT USSR
15	LN-BN	070	VY LOW	000	UNSETTLED-M.S. LEVELS	14/19	#K=3	Isolated M.S. Levels
16	LN	071	VY LOW	016	UNSETTLED	12/13	#K=3	RGN 4633(6)
17	LN	073	VY LOW	021	QUIET-UNSETTLED	07/10	#K=2	RGN 4634(11)
18	LN	075	VY LOW	037	UNSETTLED	10/13	#K=3	RGN 4633(10), 4634(4), 4635(3)
19	LN	075	VY LOW	027	QUIET-UNSETTLED	10/12	#K=3	RGN 4633(5), 4634(2)
20	LN	075	VY LOW	010	QUIET-UNSETTLED	08/08	#K=3	RGN 4633(1), 4636(0)
21	HN-LN	077	VY LOW	000	QUIET-UNSETTLED	08/07	#K=2	Some Minor Flares reported, No Sunspots
22	LN-HN	076	VY LOW	013	QUIET-UNSETTLED	08/08	#K=3	RGN 4637(3)
23	HN-LN	078	VY LOW	026	QUIET-ACTIVE	12/11	#K=2	RGN 4637(5), 4638(1)
24	LN-HN	080	VY LOW	058	QUIET	07/09	#K=2	RGN 4634(2), 4637(8), 4638(4), 4639(4)
25	HN-LN	079	VY LOW	017	QUIET-UNSETTLED	09/07	#K=3	RGN 4637(7)
26	LN-HN	077	VY LOW	017	QUIET-UNSETTLED	10/09	#K=3	RGN 4637(7)
27	HN-LN	075	VY LOW	021	UNSETTLED-ACTIVE	10/12	#K=3	RGN 4637(11)
28	HN-LN	074	VY LOW	031	UNSETTLED-M.S. PERIODS	15/24	#K=2	RGN 4637(7), 4636(4)
29	HN-LN	073	VY LOW	027	QUIET	05/09	#K=2	RGN 4637(6), 4639(1)
30	HN-LN	072	VY LOW	028	QUIET	06/06	#K=1	RGN 4637(5), 4636(3)
31	HN-LN	074	VY LOW	026	QUIET-ACTIVE PERIODS	12/--	#K=1	RGN 4637(2), BGN 4640(2), RGN 4641(2)

The data collection is improved by including the actual SSN - Sun Spot Numbers vice the estimated value. I.e. RGN 4633 (6), means Region 4633 and 6 spots. The SIDC Suspot # for February '85 = 16.1 (Mean Provisional).

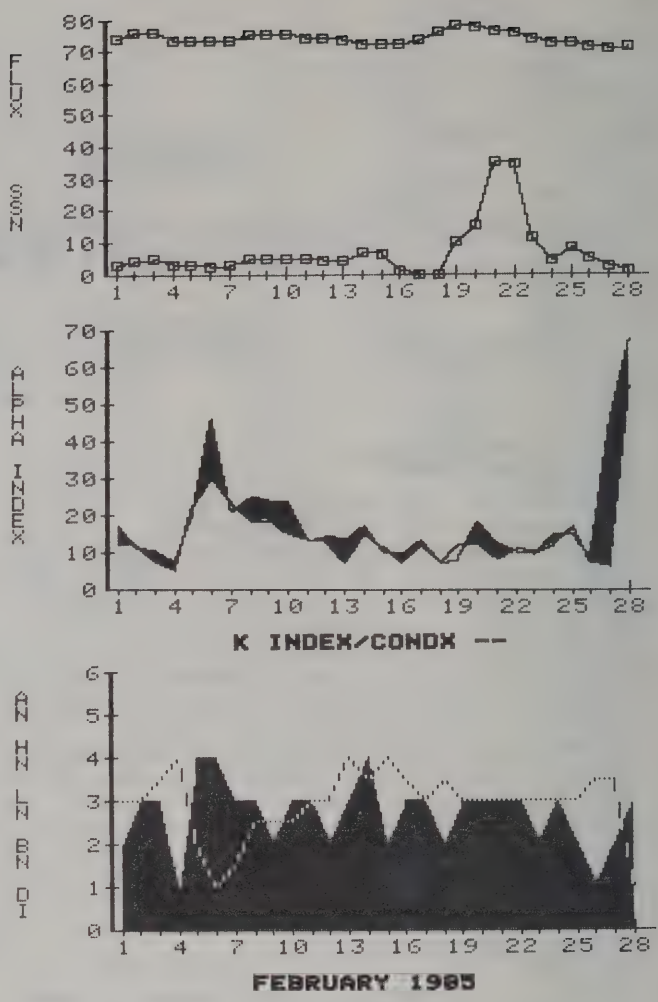
Low band propagation continues to be where the action is. European DX on 160 m is being recorded in Hawaii an hour after Sunset. Check your Grey Line path from your area for best results. Both 80 and 40 continue to support DX propagation. The only drawvacks are lightning and thunderstorms near your area and some band QRM.

Several new ReGioNs, RGNs 4636 through 4639 came onto the disk during the third week of March to add their sunspot activity to several RGNs still on the disk, RGNs 4633 - 4635. These additional regions moved Solar Flux level from 075 on the March 18th, toward a weakly peak of 80, on March 24th, perhaps the highest and best HF propagation for March '85.

Yet, geomagnetic field activity remained Quiet to Unsettled with brief periods of active conditions. (KH6BZF)

We apologize for not including the propagation column in the last issue. It was a pileup of bad things, mail was late, we were trying to start using the new program and plotter, but things didn't work out, the plotter wasn't compatible with the program (too new) so we have to wait for proper interface. This issue is done in the old style. We hope to have major cosmetic changes in the next issue.

We hope that Lee, KH6BZF recovered from short stay in the hospital and is back in the pileups! (I hope he didn't look into the Sun without his sunglasses!) We are also hoping to get an article from Lee about things behind all those mysterious numbers. Time to switch your antenna systems for low band operation, the Sunspot minimum is yet to come in about two years! (VE3BMV)



FEB '85	CONDX	SOL FLUX LEVEL	SSN#	GEOMAGNETIC LEVEL	ALPHA INDEX	K INDX	NOTES
01	LN	074 VY LOW	003	QUIET-ACTIVE	12/17	#K=2	
02	LN	076 VY LOW	004	QUIET-ACTIVE	12/11	#K=3	
03	HN-LN	076 VY LOW	005	QUIET-UNSETTLED	07/10	#K=3	
04	HN	073 VY LOW	003	QUIET	05/07	#K=1	Best HF this week
05	BN	073 VY LOW	003	QUIET-MINOR STORM	22/20	#K=4	Minor Storm Levels
06	DIS	073 VY LOW	002	M.S. LEVELS	30/46	#K=4	#K=50 1200-1500 UTC
07	DIS-BN	073 VY LOW	003	M.S.-ACTIVE LEVELS	23/21	#K=3	
08	LN-BN	075 VY LOW	005	ACTIVE-UNSETTLED	18/25	#K=3	
09	LN-BN	075 VY LOW	005	ACTIVE-M.S. LEVELS	19/24	#K=2	Coronal Hole Activity
10	LN-BN	075 VY LOW	005	ACTIVE-UNSETTLED	15/24	#K=3	
11	LN	074 VY LOW	005	UNSETTLED-ACTIVE	13/13	#K=3	
12	LN	074 VY LOW	004	UNSETTLED-M.S. LEVELS	13/14	#K=2	#K=5 @ 06-0900
13	HN	073 VY LOW	004	QUIET-UNSETTLED	07/13	#K=3	Best HF prop this week
14	HN-LN	072 VY LOW	007	UNSETTLED-ACTIVE	15/17	#K=4	RGN 4627
15	HN	072 VY LOW	006	UNSETTLED-QUIET	11/10	#K=2	
16	HN-LN	072 VY LOW	001	QUIET-UNSETTLED	07/09	#K=3	
17	LN	073 VY LOW	000	QUIET-UNSETTLED-S. ACT	12/13	#K=3	
18	LN-HN	076 VY LOW	000	UNSETTLED-QUIET	07/07	#K=2	
19	LN	078 VY LOW	010	QUIET-ACTIVE	12/08	#K=3	RGN 4624
20	LN	077 VY LOW	015	UNSETTLED	12/18	#K=3	RGN 4624 (5)4629 (10)
21	LN	076 VY LOW	035	QUIET-UNSETTLED	08/12	#K=3	RGN 4628&4629 (MANY)
22	LN	075 VY LOW	034	UNSETTLED	11/10	#K=3	RGN 4628&4629 (MANY)
23	LN	073 VY LOW	011	UNSETTLED-QUIET PERIOD	10/09	#K=2	RGN 4628&4629 (MANY)
24	LN	072 VY LOW	004	UNSETTLED-QUIET PERIOD	12/15	#K=3	RGN 4629 (4-SPOTS)
25	LN	072 VY LOW	008	QUIET-UNSETTLED	17/15	#K=2	RGN 4629 (8-SPOTS)
26	LN-HN	071 VY LOW	005	QUIET-UNSETTLED	07/08	#K=1	RGN 4629 (5-SPOTS)
27	HN-LN	070 VY LOW	002	QUIET-UNSETTLED	06/--	#K=2	RGN 4629 (2-SPOTS)
28	DIS	071 VY LOW	001	VY DISTURBED	55/68	#K=3	Major Storm/S.I.D @ 27/2127 UTC, Storm Ended on 28th February

SUNSPOT INDEX DATA CENTRE - BRUSSELS

1984 - R_I DEFINITIVE SUNSPOT NUMBERS

1984	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	10	110	74	103	109	48	33	14	45	7	16	19
2	16	82	78	94	89	44	36	17	50	8	14	22
3	17	67	66	88	69	45	61	18	61	11	11	19
4	18	61	54	81	52	34	80	25	58	11	14	19
5	21	66	65	61	38	30	72	18	53	0	12	16
6	29	76	49	70	27	23	61	24	32	0	0	21
7	37	79	51	50	35	34	64	27	21	0	11	18
8	38	94	64	33	54	31	74	32	20	12	13	23
9	50	115	60	36	72	26	63	35	13	14	13	21
10	44	123	46	12	85	31	74	31	10	17	21	15
11	48	118	65	21	94	37	57	29	9	22	27	28
12	51	108	72	28	100	39	54	31	9	16	21	29
13	48	82	79	24	118	41	44	28	9	10	16	28
14	46	77	88	32	111	50	34	27	0	9	15	28
15	44	80	112	59	85	60	30	23	8	14	13	26
16	46	53	117	60	97	83	25	23	12	19	11	30
17	51	51	105	56	83	73	21	18	0	24	11	24
18	49	50	95	73	70	62	26	17	0	25	14	12
19	51	54	90	82	74	51	22	11	10	25	13	11
20	69	54	103	69	70	53	18	16	0	17	27	11
21	76	76	98	68	65	43	12	12	9	19	36	14
22	64	100	87	55	77	48	22	10	10	12	36	12
23	70	121	89	59	83	54	25	19	8	11	41	11
24	70	117	80	80	86	58	38	24	8	9	47	16
25	99	117	97	99	75	44	30	36	7	10	59	21
26	105	101	97	124	87	49	25	49	0	10	44	20
27	99	78	96	121	66	40	9	41	0	8	39	14
28	106	78	98	125	68	41	9	37	0	0	39	16
29	110	88	94	120	74	50	12	34	0	8	30	15
30	102		107	107	70	42	16	27	8	11	20	10
31	82		113		63		12	36		14		10
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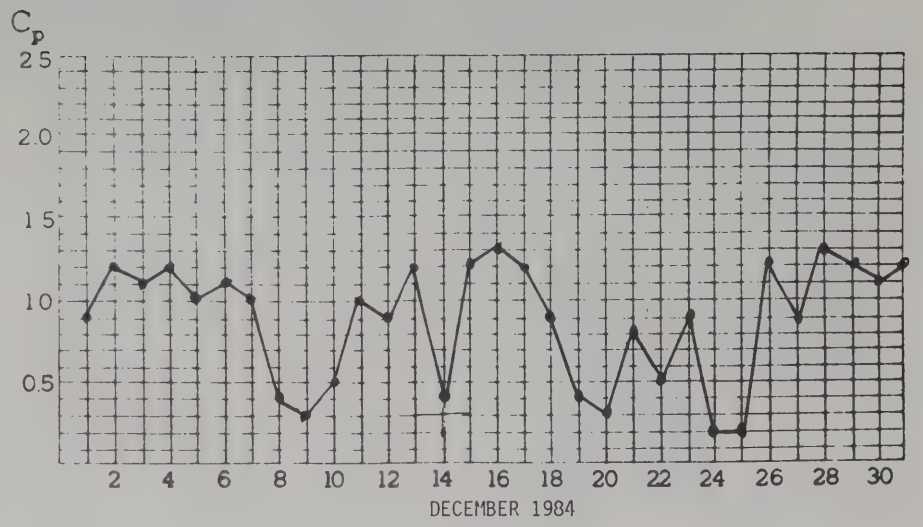
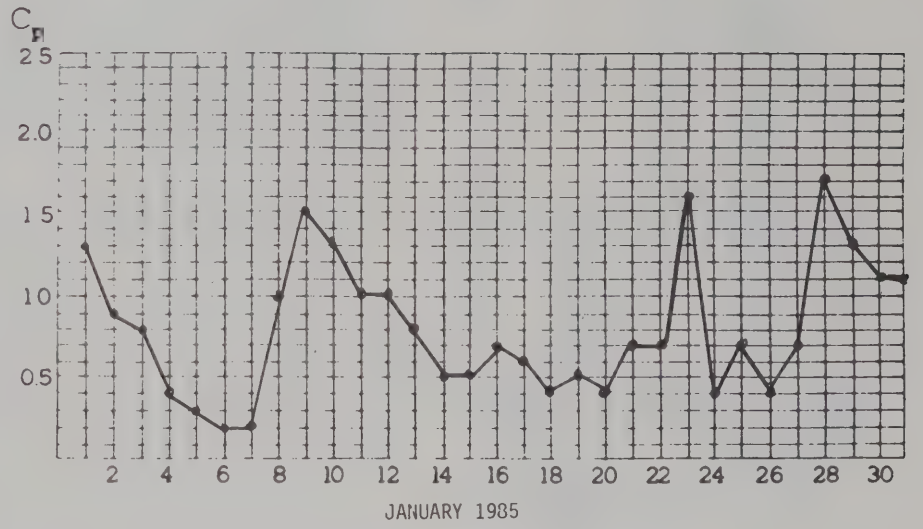
MEAN	57.0	85.4	83.5	69.7	76.4	46.1	37.4	25.5	15.7	12.0	22.8	18.7

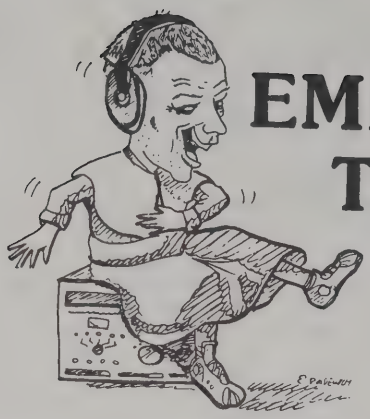
1984 YEARLY MEAN : 45.9





Daily Geomagnetic Planetary C_p Index

L'indice journalier C_p de l'activite géomagnétiq e planetaire



EMERGENCY TRAFFIC

Chuck Clark, K4ZN

PHONE PATCHES

Amateurs perform an important public service by allowing the public to use their facilities for communication, and the fact that it is possible to connect to the public telephone system makes their service more valuable yet. People aboard ships at sea, travelers away from home, people in military service, even friends and relatives looking for an unusual way to contact loved ones, all have benefited from Amateur Radio phone patches. More important yet, however, in time of emergency, when normal communications are non-existent or severely overloaded, an amateur phone patch often enables key officials to conduct important communications which would otherwise be impossible.

Everybody agreed that amateurs were performing this service, that the service was valuable, that it wasn't bothering anyone, but technically it was illegal: only the telephone company had the right to connect equipment to its lines. But the authorities looked the other way for many years. Amateurs conducted patches, the ARRL refused to admit that it was being done or to advise on how to do it, the FCC and DOC knew about it, the telephone companies knew about it, but nothing was said by anyone. Then around 1970 the bubble bust. An electronics manufacturer in Texas, Carterphone, marketed a phone patch to be used with commercial two-way radio equipment. Now the telephone companies did object. Amateurs had been doing it on a small scale, had not threatened the companies revenue. In fact it is possible that the existence of Amateur Radio actually results in a net increase in the phone companies' revenue, because communicating is addictive, and communication is also much easier by landline than by radio, especially when a patch is involved. But this was something else. Commercially used phone patches would bypass the telephone system, would be in direct competition with mobile telephone service, and the proliferation of patches probably would mean the proliferation of problems. They sued.

When the case came before the FCC, referred by the trial judge, the FCC sided with the plaintiffs, such use of phone patches was indeed contrary to the tariffs, but the Commission also sided with the defendants and declared that the tariffs were too restrictive, and directed the phone companies to revise their tariffs to provide for direct connection of customer-owned equipment with the phone lines.

So that's the way it is now. We may connect out phone patches directly to the telephone system if the patch is registered with the FCC. Any registered patch will have a standard modular plug that will fit a telephone receptacle. Or you may insert a registered protective network into the system and then you can add any device you wish, a home brew patch, computer, or what have you. Both the patch and the protective network prevent excessive voltages from appearing on the phone lines, insure proper operation of the signaling functions, and (probably most important for the phone company) protect the company's revenue, insure that calls don't go through without being charged to the customer's account.

Actually, anybody who has enough know-how to install a patch that works would probably also know enough not to endanger the system. The fact that we amateurs did it for decades without giving any trouble is proof of that. But now it's in the rules, so we had better observe them. It could happen that the FCC would lift the license or fine an amateur who connected some unregistered gear to the phone line, if only to avert the charge of enforcing the rules selectively.

In Canada, the DOC follows a somewhat more lenient policy at present. Phone patches must be approved, but, unless an amateur's homebrew patch causes trouble, no action will be taken.

THIRD-PARTY TRAFFIC

Don't forget that phone patches are third-party traffic, and so are not allowed internationally unless the countries have a third-party traffic agreement.

The only exception is for messages of a real emergency nature, distress messages, which the International Radio Regulations require all stations to handle and give top priority to. Yes, the restriction on handling third-party traffic internationally is silly, but it's on the books, and they have the guns so we'd better do what they say.

TECHNIQUE

If you use a manufactured patch, all you have to do is to connect it according to instructions. A homebrew patch can be as simple as two transformers to match the 900 ohm impedance of the telephone line to speaker and mike connections on the rig, a manually-operated switch to connect the phone line to either transformer (with an extra contact to switch the rig from receive to transmit), and a 2 microfarad capacitor to block the DC on the phone line, to keep it out of the transformer windings.

Should you use VOX? The general consensus of phone patchers on HF is no. A non-ham will often be upset by the rise in noise when the receiver comes on during a pause. Better to tell them to say "over" when they are finished talking.

It's different on VHF: most patches there have automatic switching between transmit and receive, in fact most of them operate unattended as autopatches, as part of a repeater installation. As high-tech jargon would say, the better ones are almost user-transparent, you hardly know you're on a patch and not on a normal telephone connection, with one exception. The radio channel is simplex. It operates in one direction at a time, even though two different frequencies are used. So it's helpful to remind users that "I can't hear you while I'm transmitting." But then many landline telephone user can't either, and they are operating full duplex!

FINDING AN OUTLET

So you have your phone patch set up and ready to go and somebody asks you if you can connect with a brother in Hawaii. How do you find a station? The best place to look is on the phone nets, especially those in the 20-meter band. Just check in and ask for a two-way, push-pull, or phone patch into Honolulu. A station comes back from Hilo and asks if you will take a short haul. What's that? The question means, "Is it OK if I place a collect call to the party?" Short haul and long haul are relative terms. A long haul would be something like a California station handling a phone call to a party in Memphis, Tennessee.

The people on the nets don't mind handling patches, but don't overdo it. Keep them short. Remember, we have only a limited number of frequencies, and one of the quickest ways to bring phone patching to an end would be to tie up a significant amount of band space with patches. Other hams would complain to the FCC and DOC, and the result would be immediate.

Even though the U.S. or Canada may have a third-party agreement with a given country, that does not necessarily mean that we may pass phone-patch traffic with that country. If the patching is done on this end, there can be no complaint. But some countries (Mexico is one) allow no connections to be made to the public phone system.

Phone patches continue to be a valuable public service, and should be encouraged, but should also be used with prudence.

(K4ZN)

Thank you very much for the sample copy of RADIOSPORTING. I will introduce myself as a OT (35 years since I got my first EA8 license) and being round the year in top band since 1981. Sometimes you can hear EA3VY on CW contests as a team activity of a group of young operators trying to improve their skills. My QTH is in the countryside and rather well placed for low band operation. I am proud to contribute to the developing interest for CW in EA. I am one of the worst operators on CW, just able to make short QSOs. At my age of 60 I do not think I can improve too much. Nevertheless, I have given the first EA or EU to many stations in USA and Canada and I do recognize that CW is a must on the top band.

Frankly speaking, I have been very impressed with the subjects in your publication and specially your point of view about the lists operation, a plague that I especially hate, and the need to do our "own" operating. My own point of view is to consider awards, QSL collecting and such, like salt or spices to our ham radio. Just a little bit, as to good food, is OK. Too much gives a bad taste. The most important thing is to operate regularly, trying to solve difficult propagation problems by study and antenna development. The rewards are great. As I say many times there is no music like the sound of a W7 calling us on 160 m. It took two years to find the right moment for the ZL-EA regular contacts and credit must be given to ZL2BT for his cooperation. Then we have contacted about 30 times including some SSB armchair copy lasting 5 to 10 minutes. Hope next season I could have a KL7 cooperation for our extremely difficult path over aurora zone. Then, operation as much as possible and judiciously too.

Best 73s. Jose Mata Garriga, EA3VY
PO Box 222, El Vendrell - Terragona
Spain

Yuri es etal;

Got the February issue of RADIOSPORTING, the first issue of this publication I have seen. Interesting! Provocative! O.K.!

Some random thoughts to go along with my subscription, membership. The editorial by WE3BMV, AKA, VE3BMV hi hi. I believe you hit the nail on the ol head, OM, regarding the impending "doom" of ham radio as we know it. Bravo on quality vs quantity. Your pointing out the attraction of computers to younguns is quite valid and the magical aura of intercontinental communications is not as mystical as it was twenty or thirty years ago. My wife, a non ham, suggested that very problem just two weeks ago. Another possibility that I haven't seen in print is, the correlation between growth in the amateur ranks as related to the leveling off in general population growth in North America in general. Especially the available pool of youth that seems to be the main concern of "we must have large numbers" advocates. I am not against recruiting new hams, and am active in that regard, but not at any cost. I am not afraid of competition in pileups or contests. I have been hamming for 30 years now, almost all CW and have seen the not so desirable evolution of operating ethics.

I am not dead set against a no code license, with provisos. I am more concerned about the present testing system which in essence is quite near to a no-code exam because of the testing methods for code. It is becoming more common for someone to go from no license to advanced in one sitting. This doesn't make sense to me. I think that there should be a time requirement in grade before becoming eligible for advancement. Why? There is only one way to become a good operator, CW or SSB, and that is on the air experience. Of course that is the function of the novice ticket. More and more advanced and extra type calls are on the air and are totally inept at procedures on the air. One cannot spend any time just listening and not hear those types, and wonder how the heck they got their licenses anyhow.

Contesting: I have always lived in very very poor QTHs where DX was getting out of the valley I lived in. Now I live in an excellent QTH. I can work stations even at the bottom of the cycle any day of the week that I never heard at best conditions elsewhere. Well, I finally got into a contest, the ARRL CW test this year, and have the fever now!! For sure, for sure, hi, hi! I worked single, single, CW and had a veritable ball!

Lots of good, interesting, useful, information in your publication. A good rag! I am happy to become a member of the IRSA. Looking forward to current copies of the journal. Mni tnx.
73 es cu dwn log

Paul Menard Sr., W7KZK

Dear Yuri:

Many thanks for the complimentary copies of RADIOSPORTING. It appears that you have a real "winner" on your hands!

I was particularly interested in your appraisal of the TS-930S in the January '85 issue. Your "hands on" review was very good and agrees with my own findings over the past two years of owning a '930. I installed the F-T 2.1 kHz SSB filters in my '930 about a year and a half ago and have found them to be far superior to the 2.7 kHz OEM filters which Kenwood supplied. With careful adjustment of the carrier oscillators (as you mentioned in your review) one can center the USB/LSB passbands at just the right point to permit both excellent reception and transmit audio which will really cut through the crud. With a properly adjusted set of 2.1s all of your usable "communications" TX audio spectrum is within the passband of the filters and that's where you want your RF to be concentrated. The audio won't be hi-fi, but it will be potent and copyable. I know of several ham acquaintances who have discarded their F-T 2.1s because they didn't take the time to set them up properly. They can't be just "dumped" in, they must be "installed".

While I have not noticed any "holes" from using the '930 noise blanker in the NB1 mode, I do notice them when in the NB2 mode. Of course this is due to the fact that NB2 was designed for helping to eliminate the "woodpecker" and the blanking pulses, of necessity, had to be stretched to ensure that the complete pulse was blanked, hence the "holes". Your comments on why noise blankers sometimes "appear" not to work were very much appreciated. It would be nice if we could have a do-it-all noise blanker, but that might be a bit too heroic for most of us to use effectively.

We used my '930 at K4VX for a multiplier station in one of the recent DX contests and found that it worked superbly, as did an IC-751. As I tuned upon a new mult, I just added his frequency to one of the eight memories and went on until I had all memories filled. At that time I'd take over as the multiplier station and run everything I had in the memories. It sure beats the old "write'em down on a crowded note pad" method!

Enclosed are several mods that I've put together for the TS-930S. I thought you might be interested in seeing a couple of them. They're pretty much self-explanatory. MOD D has proven to be a real help when fighting the pileups on a DXpedition working split. With this mod, if I wish, I can use the D.LOCK to lock my RX/TX frequency. But still QSY my TX frequency (during RX or TX) by just pressing the T-F SET button and tuning the main dial. As soon as I let up on the T-F SET, the new frequencies are again licked in so I can't accidentally brush the dial and loose everything. It really beats having to set and reset the D.LOCK each time.

You might want to remind your readers that Kenwood User's Net meets every Sunday at 2000Z, on 14.317 +/- QRM. The net is a non-commercial vehicle for Kenwood users to find out about new mods to their gear, to obtain technical assistance (sometimes) on problems they have been unable to remedy, and to just see what the other fellows have to say about their rigs. Everyone is welcome

and you don't have to be a member of anything to join us on the net.

By the way, I find the spare VFO to be as useful as XIT when it is necessary to shift TX frequencies and leave the RX where it is.

Having had a chance to use both an IC-751 and a TS-930S for 48 hours during a contest, I must say that while the '751 does a fine job, it still doesn't have nearly as good a feel as does the '930.

73 Keep up the good work. CU at Dayton! Tom Hammond, NØSS

Dear Yuri,

Congratulations on your decision to "go for it." You will have my support. By the way, I am particularly interested in your mention earlier of a permanent ranking system for determination of "contest-master" rating, etc. Some of us "old" guys ('39) who have "paid contest dues" would like to see long-term recognition of past efforts, as opposed to the "flash-in-the-pan" hotshot who disappears quickly.

Best 73. Glenn Rattmann, K6NA

Dear Clara,

I very much enjoyed your piece in the February issue, as well as the W2PV article. The bit about ARRL DXCC credit for "Don Miller Country" versus XZ9A is a particularly sore point with me. Primarily what this has meant is that if I had been DXing pre-1970 I could be sitting pretty. But if I started after ARRL became an arm of the UN and began determining recognition on the basis of whether tin-pot bureaucrats in third world countries allowed amateur radio, I am out of luck. Thus, in effect, we have "grandfathering" for the top places in the Honor Roll.

O.K. but, then we get to one of the last paragraphs in your piece and all of a sudden somebody's ox gets gored. "Whatever is done in the US should be done with sensitivity toward the rest of the radio world. That goes for the expansion of bands...". Etc. etc.

With all due sensitivity for Mapleleafs, whatever causes you to believe that because you live north of the 49th Parallel, you deserve your own uncluttered parts of the amateur bands? There are several call areas in the US with more amateurs than all Canada. By the same token some US call areas should be granted subbands of their own. After all, who needs all that QRM form the populous W4 and W6 call areas?

Come on now, cut the special pleading!

73 Forrest Gehrke, K2BT

Dear Forrest,

What makes you think that I am Mapleleafs? Or since when the rest of the world is Mapleleafs? What is so bad about having the uncluttered bands for those underprivileged developing hams with dipoles and bare feet? You guys probably need the division more than anyone else, because this gives you a segment that is relatively clear, you can hear that wanted country or zone and work him split, while otherwise he would be clobbered by the high power splatter and you would never even hear him. (See how many "angels" running 20 kW or more the FCC has caught recently?)

Is it a crime to ask for sensitivity to the rest of the world? Can't you see obvious reaction after you make the changes regardless of what is happening elsewhere? They would move their subbands in order to maintain ability to communicate while the bands are open to North America. Who suffers? The CW and other modes. There was a survey done in Canada on deregulation of subbands. It was proposed that the mode subbands were deregulated and observed on the basis of personal discipline depending on the situation. Do you know that the majority of VE hams voted against it? There are people who think and love their hobby and they know what would happen if this was done. How about doing your part and being considerate and sensible. Speak to your friends overseas and find out their feelings on this subject, never mind the 49th Parallel (or Series).

Have you tried 10 MHz lately? Not much happening there and lots of room up there. No subbands either, it's all ours.

By the way, my father was French, my mother Yankee, and I live now in Missouri. I love french onion soup and pizza, and I hate fish. What does that make me?

Congratulations on your article series about vertical antennas in Ham Radio! How about writing something for RADIOSPORTING? 73, Clara FØOL/NØ

Dr. Unal Akbal, TA1A, ex TA1UA.

Dear Yuri:

This is to call your attention to an error which appeared in C.W.Bug's column on page 10 of the February issue of RADIOSPORTING. In the column the question is asked "How come Turkey is "recognized" (by the ARRL DXAC) when no one issued licenses there?" This is a bad mistake -- especially in light of recent developments.

Enclosed is a photo of Turkey's first "legal" Ham since 1938, TA1A. His name is Dr. Unal Akbal. Unal is the first amateur in Turkey to receive his license and permission to operate under Turkey's new "Wireless Law." This law, Number 2813 which repealed law number 3222 banning private use of radio transmitters, was passed by the Turkish government on 5 April 1983 and enacted in April 1984.

Unal, formerly TA1UA, wrote me on the day he received his government license. He is a long time member of TRAC (Turkiye Radyo Amatorleri Cemiyeti), Turkey's equivalent of the ARRL, and is its General Secretary. Until the government began issuing licenses just recently, TRAC issued them. TRAC, while not part of the government (like the ARRL), was recognized by Turkey as its Amateur Radio spokesman. I was licensed by TRAC in 1979 as TA2BAV (my QSL enclosed). In general the ARRL DXAC accepted QSLs from amateurs licensed by TRAC to operate. Unlicensed "pirates" were not so recognized. They should not be.

Hope this clears up one of the Clara's concerns in the area. DXers should be able now to look forward to working government licensed Turkish Hams like TA1A. I'd be glad to answer any other questions which you or Ms Bug might have concerning Amateur Radio in Turkey.

Burt A. Vander Clute II, N4ERM

Dear Burt,

Thank you for the letter and pictures. Yes, to correct the wording, we should really say: "...when no one in the government issued licenses there for the period of time." Yes we know, the situation was touchy there for a while. I was trying to make a parallel as to the government recognition and ARRL acceptance. While we should not promote "pirate" operations from the foreign countries, we should recognize the operations by natives operating from the territory or expeditioners proven to be there, even if the local government does not bless the activity. In case of Burma it is really ridiculous to say that XZ9A etc. are "no good"!

We are all happy to see the situation change in Turkey and please write us an article on the situation there now and

in the days when they were not allowed to operate.

73, Clara

"We want things that we either don't have or can't get, or that we have to work for. We feel much better if we achieve something, especially if it is something "impossible". Every time I hear there is something "impossible", I'd like to do it. (What's the point of doing something anyone can do?) I think nothing is impossible, it just might take time, but mainly skill and willingness to do it."

(VE3BMV Radiotorial, Jan. 85)

Congratulations - this is the first editorial I've liked in years. If you want to go to the moon, I'm for the stars!

GL Stu, K4SMX, KP6BD, 1S1DX

Thanks Stu, especially when the comments come from you, who with other dare-devils operated from Spratley Islands under the Vietnamese noses. Want to go up in the Shuttle? Have you got any connections with NASA? I have tried through the Canadian Astronaut Program, but they did not pick me. (Maybe because my name is too long.) We could probably do a better job than 2m FM types. See you in space?

Yuri, VE3BMV

Yuri,

Thanks again for the RADIOSPORTING Magazine. For some reason it really gets my attention. Of course the interesting articles and comments are a major part of it but perhaps the non slick format is part of it also. It seems to demand comment from the readership, at least this one. The March 85 issue on the Vertical Polarization and the Delta loop was useful to me. Carl Henson's DXpeditioning is always good reading. I had the pleasure of attending a presentation by him at the Louisville Hamfest last fall about 3C1 and 3C0 operations. His latest jaunt to 3C1 was good for me since I did work him and I'm looking forward to his QSL card. The difficulties of DXpeditioning are quite eyeopening, of course he does pick some difficult places to go, thankful. Being an oldtime ham but a new DX addict I can appreciate their problems with the incredibly rude mob of clods trying to work him without regard to anyone else including the DX station itself. It sure is nice to work an experienced, smooth operation like Carl. Another one that deserves high honors is Chuck, KC7UU/5N. They seem to have the nack of giving everyone a shot at them regardless of the lids.

Re; letter from Fred Klein, KS7T:

Fred pretty much summed up my feelings regarding DX operations. I was fortunate enough to work CE0AA on San Felix on two bands without being on a list, or at least I hope it wasn't a pirate playing games. After reading about their expedition and the problems with getting it going on short notice I can understand their frustration about being criticized. I do not play around with list operations, and personally prefer a one on one exchange even if I never make the Honor Roll. Fred's comments on operators trying to work specific call areas being ignored are certainly valid! I cannot believe the lids and inconsiderate ----- that continue to call and give exchange info when they were never acknowledged. They must get a lot of QSL cards that are not in their logs. Hopefully the clods won't get a card and be encouraged to continue their errant ways. I have listened to KC7UU/5N8 spend considerable time trying to get the call of some weak station to legitimize the exchange and continually be hounded by inconsiderate operators during the operations, yet much to his credit continue to try to get the call of the little signal. It is a pleasure to just listen to his operation. In summary, there is more to being a good CW operator than having an extra class ticket. It takes time and patience to learn the skill and lots of listening to DX operators will benefit newcomers to the DX insanity and contesting.

Thanks Yuri, CU down the log, 73!

Paul Menard, W7KZK

Dear Yuri,

Just a few lines in a hurry. Congratulations on RADIOSPORTING! It's very nice. I hope you'll have success. Unfortunately the high dollar rate makes a subscription expensive over here. I'm now very busy planning the 3B7 expedition. I hope this info will arrive in time for your next issue. My ideas about split channel operation are described in the attached article. After the expedition I will send you all info and photos. 73 Erik, SMØAGD

Dear Yuri,

RADIOSPORTING arrived in this morning's mail and I scanned through FCC NEWS and found three glitches, only one of which was of any consequence. That is in the fourth paragraph, 24th line (March '85, page 42) which should read "..licensees against unreasonably restrictive..." As you can see, leaving "un" out changes the whole sense of the statement. While some readers may recognize that it is a typo, I think it is worth correcting in the next issue of RADIOSPORTING.

I got a chuckle out of Here's the Beef and Dave Wilson is to be complimented on his thrilling story "Amateur Radio to the Rescue". Regarding the Hunt's adventure, I have driven through, and flown over those mountains where they crashed and they were extremely lucky to have lived through it! The performance of the Amateurs in locating the Hunts and arranging for their rescue is something to make us all be proud of being Radio Amateurs.

Bill Grenfell, W4GF

Thank you all for encouraging comments, it is a balsam on my sore fingers and pain in the back, it will keep me going!

Yuri, VE3BMV

Oh my goodness, advertisers finally discovered RADIOSPORTING!!

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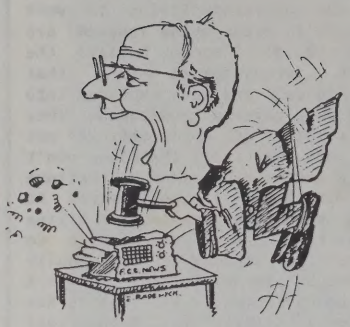
FCC NEWS



BILL GRENFELL, W4GF

THE FCC HAS RESCINDED THE MORATORIUM IT DECLARED ON NEW REPEATERS IN BIG-CITY AREAS IN THE PR DOCKET 85-22 NOTICE OF PROPOSED RULE MAKING IT ADOPTED JANUARY 23, 1985. (See last month's FCC NEWS). "The moratorium had been imposed to forestall a growing number of amateur repeater interference complaints. The ARRL filed a Petition for Partial Reconsideration in this proceeding, asking the Commission to lift the moratorium, and pointing out that repeater operation is permitted by Part 97, and that a notice of proposed Rulemaking could not in and of itself modify an existing rule." (ARRL letter, 02/28/85). The Tri-State Amateur repeater Council filed a petition recommending that the moratorium be lifted for all bands except the two-meter band. Getting back to the basic aim of the NPRM, FCC desires comment on its proposal which would amend Section 97.85 "Repeater operation" to add new paragraph (h) as follows: "Where an amateur radio station in repeater operation causes harmful interference to the repeater operation of another amateur radio station, the two stations are each equally and fully responsible for resolving the interference unless one repeater is coordinated (see 97.3(k)) and the other is not. Where one repeater is coordinated and the other is not the station with the non-coordinated repeater has primary responsibility to resolve the interference." Original comments should be filed with the Commission on or before July 1, 1985, and reply comments on or before September 30, 1985. Refer to PR Docket 85-22 and mail to: FCC, Washington, D.C. 20554.

JERRY R. DYKE, WB5LEU OF THE HOUSTON SUBURB OF SPRING TEXAS, HAS BEEN FINED $2,000 BY THE FCC FOR OVERPOWER OPERATION IN THE AMATEUR 80-METER BAND. Dyke was monitored by the FCC's Houston field office. Engineer-in-Charge Dan Cantrell said: "the power level was measured in excess of 20,000 watts. The carrier power of the home brew amplifier was measured at 25 KW." (W5YI Report, 03/01/85)

THE COMMENT DEADLINE ON FCC'S PROPOSAL TO DELETE THE CURRENT 30 DAY WAIT REQUIRED BEFORE RE-TAKING AN EXAMINATION AFTER FAILURE HAS BEEN CORRECTED BY FCC. Initial comments on PR Docket 85-21 will be allowed through April 8 and reply comments are due on or before May 10, 1985.

A FLORIDA JURY HAS RETURNED A VERDICT AGAINST EUGENE SYKES, W4OO, IN A FORFEITURE CASE. The U.S. had brought suit against Sykes to collect a forfeiture of $550 imposed by the Commission for his overpower operation in the Amateur Novice bands. An Extra Class licensee, he was caught on May 27, 1982, operating on a Novice frequency with more than 540 watts where all operators must observe a 250 watt limit. The Commission monitored him because of complaints that he was causing malicious interference. "A neighboring amateur...contended at that time that Sykes was actually using excessive power to intentionally interfere with his 20 meter transmissions at the second harmonic level." (W5YI Report, June 1, 1984)

SENATOR BARRY GOLDWATER'S REMARKS UPON INTRODUCTION OF SENATE RESOLUTIONS 35 AND 36 LAST JANUARY THIRD, WERE SUPPLEMENTED BY FURTHER REMARKS INTRODUCED ON JANUARY SIXTH. An extract which seems to indicate his basic reasons for introduction of the resolutions, follows: "Although I have the deepest concern for the powers of State and local governments and the vitality of the Federal system, I am troubled to see the apparent lack of understanding within many localities of the rights of individual citizens and national communications policy intended to foster competition among the electronic media services and adequately provide for personal and safety uses of radio."

JAMES E. RICH (WD6CJB) OF MILLBRAE, CA, HAS PAID A $500 FINE FOR CONDUCTING "BUSINESS" OVER HIS AMATEUR STATION AND NOT PROPERLY IDENTIFYING HIS STATION. (W5YI Report, 02/01/85)

INCLUDED IN THE PR DOCKET 85-24 PROPOSED RULEMAKING, PRIMARILY CONCERNING THE AMATEUR MICROWAVE BANDS, IS THE SHIFTING OF THE STATUS OF AMATEUR USE OF THE 1900-2000 kHz BAND. The Part 97 rule would require that amateur stations "must not cause harmful interference to the non-government radiolocation service." Similar protection for the government radiolocation service is proposed. In the 220-225 MHz band the international and domestic frequency allocation tables now put the Amateur Radio Service "co-primary with both the government and non-government fixed and mobile services." Secondary status to the government radiolocation service continues for the Amateur Radio Service in the 420-450 Mhz band. However, the proposed pecking order between the Amateur and the other services sharing various segments of the band is too involved to describe here. A description of the availability proposed for the Amateur Service in bands which start at the following frequencies is included in the Notice: 1240 MHz, 2300 MHz, 2390 MHz, 3.3 GHz, 5.650, 10.0, 24.00, 47.0, 48, 71, 75.5, 76, 142, 165, 240 GHz, and above 300 GHz. The deadline for original comments was March 11, and March 26 for reply comments.

"FCC HAS MISLED CONGRESS ON THE 160-METER RADIOLOCATION ISSUE! Amateurs who contact their Congressmen are being told that 'officials at the FCC' say that at WARC-79, 'it was decided by attending nations that the 1900-2000 kHz band should be re-allocated for radiolocation use.' Amateur radio licensees in the band were allowed to continue operating in this spectrum, but only on a secondary, non-interference basis. This is untrue! WARC-79 decisions were for the amateur and radiolocation services, among others to be co-equal, primary services in that segment in North and South America. The subsequent FCC decision to make amateurs secondary, which has been challenged at every step by ARRL, was purely a domestic decision that departs from U.S. WARC proposals and violates the ground rules the Commission itself established for its WARC implementation proceedings. If your Congressman tells you that making amateurs secondary at 1900-2000 kHz was WARC decision, tell him he has been misled by FCC and ask him to demand an explanation." All of the foregoing is a direct quote from the February 14 ARRL Letter. Do you wonder why FCC insists on holding the allocation open for Radiolocation when there is no current Radiolocation activity therein? In FCC's table of frequency allocations, footnote US290 reads: "In the band 1900-2000 kHz amateur stations may continue to operate on a secondary basis to the radiolocation service, ...pending a decision as to their disposition through a future rulemaking proceeding in conjunction with the implementation of the standard broadcasting service in the 1625-1705 kHz band." Radiolocation is now allocated the use of 1625-1705 kHz. If AM Broadcasting gets 1625-1705 kHz, Radiolocation users may have to move to 1900-2000 kHz or find another Radiolocation band with a cost of obtaining modified or new Radiolocation equipment. All of this for the sake of providing for possible expansion of AM broadcasting! Who needs more AM broadcasting?? (I understand FCC's response to Congressional inquiries on this matter has been modified!)

DONALD L. RHOADS OF CUPERTINO, CA, WITH A LONG HISTORY OF UNLICENSED BEHAVIOR HAS BEEN REFERRED TO THE U.S. ATTORNEY FOR CRIMINAL PROSECUTION. He was fined $750 in 1980 for willful interference (music, indecent language) to the .22/.82 'Grizzly Peak' WB6AAE repeater. An Extra-Class amateur residing at the same address as Rhoads was issued a citation for failure to maintain control of Rhoads unlicensed transmissions. The licensee denied responsibility saying that Rhoads was

his landlord and had separate equipment. This same licensee (not identified by the FCC) was also involved in a similar 'control operator' claim associated with the alleged unlicensed operation in 1983 in the Kerr case. (W5YI Report, 03/01/85)

GARY W. KERR (EX-WA6JIY) HAS PAID A REDUCED FINE OF $300 WITHOUT ADMITTING GUILT OF PAST INFRACTIONS AND HAS AGREED NOT TO OPERATE AMATEUR RADIO FOR ONE YEAR. He had been fined $2000 for unlicensed operation. The Kerr case goes back several years to an intentional interference incident. (W5YI Report, 02/01/85) (FCC PR DOCKET NO. 81-66)

"YOU SHOULD NOT USE SOMEONE ELSE'S CALL SIGN TO IDENTIFY YOUR STATION, PERIOD" is the response I got when I asked an FCC official what was the intended meaning of the recent amendment of Amateur rule Section 97.121 "False Signals". See last month's FCC NEWS for the amended text.

RICK DWAYNE MENDELL (UNLICENSED) OF CORTE MEDERA, CA, WAS FINED $400 FOR OPERATING UNDER A WD6BJC (NOT HIS) CALL SIGN. (W5YI Report, 02/01/85)

THE FCC'S SIMPLIFICATION IN VOLUNTEER EXAMINER DATA REQUIRED ON APPLICATION FORM 610 LEAVES ONLY THE EXAMINER'S NAME AND AMATEUR STATION CALL SIGN TO BE ENTERED. FCC's Order, effective February 14, 1985, advises: "The spaces calling for the VE's mailing address, class of operator license and license expiration date may be left blank." It encourages interested parties who reproduce Form 610 to block out the blanks for the information no longer required. "Necessary corrections will be made to the Form 610 when it is next revised." The Order makes appropriate amendment to Rule Section 97.28 (f) (1).

FCC "FINED FRANCIS P. ALLEN, SR. (KB6DPX) OF SAN JOSE, CA, $1000 FOR OPERATING SSB OUTSIDE THE 10-METER HAM BAND. He surrendered his Novice ticket." (W5YI Report, 02/01/85)

FCC PROPOSES PROHIBITING DISQUALIFIED PERSONS FROM PARTICIPATING IN THIRD-PARTY COMMUNICATIONS (PR DOCKET 85-51). The Commission's rules require an Amateur station to be under the control of a licensed operator at all times. However, the rules permit a third party, who can be any person, to participate in Amateur communications, provided the control operator monitors and supervises the transmissions. Persons whose Amateur privileges have been terminated have wanted to take advantage of the third-party rule by participating in communications from stations licensed to Amateurs in good standing. FCC believes that any Amateur whose license has been revoked, suspended or canceled, either voluntarily or involuntarily, because of rule violations, should not be able to participate in any Amateur communication as third party until such participation has been approved. Comments are requested as to whether this approval should be by relicensing, by requiring the disqualified person to request and be granted written permission from the Commission to be a third party, or by some other means. FCC said that any Amateur licensee who knowingly allows a disqualified person to participate in third-party communications will be subject to sanctions for violating the proposed rule. The foregoing would be by deletion of rule Section 97.79 (d) and by appropriate modification of Section 97.114 (a) and (b). Interested persons may file comments on or before May 24, 1985 and reply comments on or before June 17, 1985. Comments should be sent to FCC, Washington, D.C. 20554.

UNLICENSED DAVID GOTO, USING ANOTHER AMATEUR'S CALL SIGN (WB6DLD) WAS FINED $750 FOR CONDUCTING 'BUSINESS' OVER THE WA6QFR/R REPEATER IN SAN LEANDRO, CA. Another WA6 (otherwise not identified) licensed amateur was cited for participating in "prohibited communications with David Goto." (W5YI Report, 02/01/85)

DURING THE FOUR MONTH PERIOD INCLUDING OCTOBER '84 THROUGH JANUARY '85 A TOTAL OF 5,137 NEW AMATEUR OPERATOR LICENSES WERE ISSUED. During the same period, 5324 Amateur operator licenses were upgraded. (W4GF)

CLASSIFIED ADS

The Classified Ads rate is 15 cents per word. Remittance in full (check or money order) must accompany copy. Each word, abbreviation, model number, and group of numbers count as one word. No charge for Postal or ZIP code. Ads should be typed or clearly printed on a separate piece of paper. The closing date is the 25th of the month preceding publication. A last name or call must appear in each ad with an address or phone number.

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N.KENTUCKY HAMORAMA to be held June 15 and 16 at the Best Western Vegas Convention Center, Erlanger, KY (I-75 to exit 184B), completely indoors, free parking. Vendors, flea market. Contact John Thernes, WM4T, days: (513) 397-7425, evenings: (606) 331-0331

VE7 CONVENTION The 33rd Annual Pacific North West DX Convention will take place at the Richmond Inn, Richmond, B.C. July 27 and 28, 1985 and is sponsored by BC DX Club. For info contact Andy Pozini, VE7AHA, 4551 Arthur Dr., Delta, B.C. V4K 2X4

OHIO VEC EXAMS will be held on Saturday May 18, 1985 at 9AM at the United Community Services Building (red Cross), 39 North Park Street, Mansfield, OH. Info from Peggy Boyle, KC8NH, 1464 Marion Ave. Rd., Mansfield, OH 44906.

NJ VEC EXAMS will be held April 27, 1985 at Glasboro State College, Westby Hall by Gloucester County. Contact John Fisher, K2JF (609) 589-2318

DX QSL SERVICE. QSL's sent to DX stations & managers. SASE for details. N7RO, 2935 Plymouth Dr., Bellingham, WA 98225

CONTEST FORMS FOR CQ WW, CQ WPX AND CAN-AM CONTESTS. Each set includes summary sheet, multiplier check sheet, dupe sheets for Europe, VE/W and rest of the world, log sheets with 100 QSOs per page as described in RADIOSPORTING Dec.84. Send business size SAE and $1 per set to: IRSA, Box 65, Don Mills, ON M3C 2R6

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ICOM FILTERS FL-30 $30, FL-44A $90, RC-10 remote keypad $20, SM-6 mike $25, MFJ-722 CW and SSB filter $39. All mint condition. Walt Amos, K8CV, 4612 Woodland, Royal Oak, MI 48073, (313) 549-1846, bus. (313) 588-9933

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INTERNATIONAL RADIOSPORT ASSN.

P.C. Box 65, Don Mills, Ontario, Canada M3C 2R6 Tel. (416) 438-6313

Purpose and objectives:

1. To promote international friendship and goodwill through sportsmanship, radio contesting and DXing.

2. To improve the quality of amateur radio operators and operating through education and experience, by voicing the opinions of radio amateurs that are experienced and have contributed to the hobby.

3. To promote amateur radio contesting and other operating-related activities as a sport, and to provide the publicity and recognition that it deserves in the public media.

4. To publish timely articles in the monthly magazine "RADIOSPORTING" on various subjects of interest to Contesters, DXers, SWL, VHF, UHF and microwave enthusiasts, on RTTY, SSTV, computers in communications, fox hunting and anything of interest to the active ham striving for self-improvement. To feature technical articles on equipment design and modifications, antenna construction, radio-wave propagation, and commercial equipment reviews by qualified people.

5. To organize, as an annual event, the "International Contest Symposium," which runs parallel (evenings) with the Dayton Hamvention; to feature timely topics with the participation of some of the world's leading amateurs at the Syposium.

6. To hold an annual Awards Dinner with an entertainment program, where awards for various achievements will be presented.

7. To maintain and publish all time record tables for significant contests.

8. To sponsor and run an annual World Contest Championship, based on results of a number of major contests, with annual the "Contester of the Year" awards in various categories.

9. To administer the "Contest Hall of Fame" and vote on awarding membership to those who have significantly contributed to the sport of contesting.

10. To coordinate and assist in the scheduling of international contests.

11. To hold regular weekly meetings on air on 20 and 80 m. (14.200, 3.830)

12. To provide an automatic, computer controlled bulletin station that transmits the latest DX and Contest news on CW and RTTY.(14.098)

13. All in all, the IRSA is dedicated to the pursuit of excellence and quality in amateur radio by promoting, publicizing and leading the way.

14. Attractive numbered membership certificates and badges are issued to members.

15. IRSA is run by contesters who are selected for their accomplishments and it is independent of any national or commercial organizations.

16. IRSA will assist and sponsor Contests/DXpeditions, Trophies and other radio sporting and publicity events.

17. IRSA is a non profit organization, with all proceeds to be used to finance events and awards sponsored by IRSA and to cover expenses incured by Association.

18. IRSA members can display the IRSA logo on their QSL cards and correspondence; members agree to obey the Contester's Code of Ethics and to promote it.

The initial fee to join the IRSA is US $12; it includes the cost of a certificate and a badge. The yearly membership dues are US $5. (Or 24 and 10 IRCs resp.)

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Members are entitled to be elected and to elect officers of IRSA. They will also enjoy many services and privileges offered exclusively to members.

RADIOSPORTING

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BY AND FOR ACTIVE RADIOAMATEURS

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